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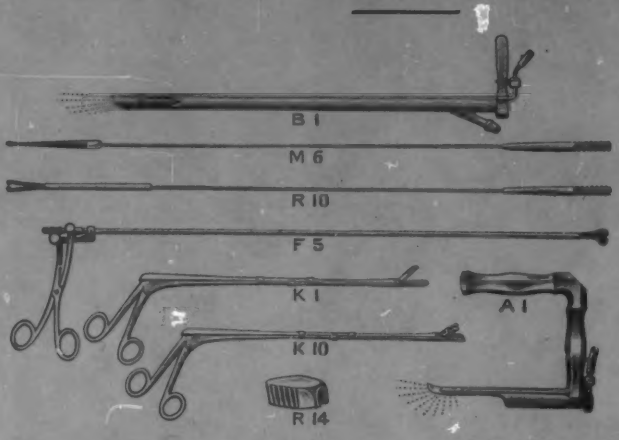

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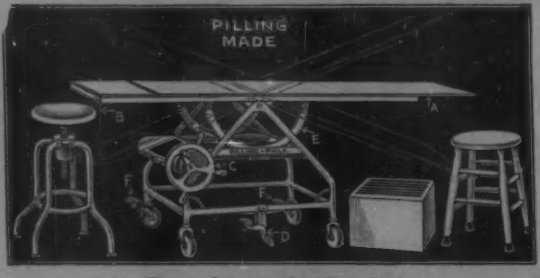

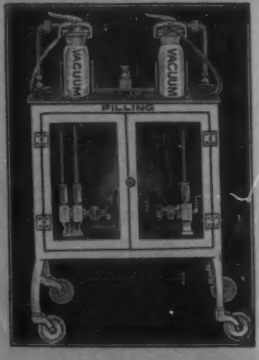

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THE
LARYNGOSCOPE.

VOL. XLI JANUARY, 1931. No. 1

THE IMPORTANCE OF GENERAL MEDICINE IN THE PRACTICE OF OTOLOGY.*

DR. D. HAROLD WALKER, Boston.

I believe this to be the first instance in the history of the American Otological Society where the President has not been able to complete his term, because of death. I wish you to know that this program, which I am sure you will all find most interesting and profitable, was largely arranged by Dr. McCuen Smith, and that your council has simply tried to carry out his suggestions. It is with the deepest sorrow and regret that I am obliged to direct this meeting, but I will try to do as Dr. Smith would wish, if he were here.

The subject of my short address this morning was brought to my mind when looking over the history of applicants for interneship at the Massachusetts Eye and Ear Infirmary last autumn. One appli-

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*Address of the Vice-President before the Sixty-third Annual Meeting of the American Otological Society, Inc., Swampscott, May, 20, 1930.

cant, whose grades in the medical school were extremely high, and whose letters of recommendation were most satisfactory, had taken for his preparation a medical interneship.

The word "specialist" is used at the present time in almost every form of human endeavor; it seems to have lost the meaning and dignity of the calling, or profession, to which it should be applied. There are specialists in all the different branches of medicine, there are specialists in the legal profession, there are specialists in investments, and specialists really in everything. The word, as applied to the practice of Otology forty or fifty years ago in Boston, meant those who were purely and simply aurists. Several of the older generation took but little interest in diseases of the nose and throat, and it was not until Hooper appreciated the necessity of the removal of adenoid tissue that the relationship of the nasopharynx to the ear was considered by the Otologist. At the present day there is a distinct broadening of the outlook of the Otologist from a surgical standpoint, so that new fields are being added. Intracranial surgery, bronchoscopy, esophagoscopy, are now his legitimate property. My desire this morning is not to dwell upon the surgical side of Otology, but upon the less spectacular medical side.

After a good many years of experience, both with hospital internes and students, and also in my private practice, I have come to the conclusion that there are as many medical problems as there are surgical, and, as a rule, they are more difficult to solve. There is no doubt that if the general practicitioner with ten years experience could then have the advantages of a hospital interneship in Otology, he would become a much more thoroughly grounded man, with a broader vision, looking at his patients from a very different angle than the young man who may have more theoretical knowledge at his fingertips, and yet no experience. Most medical students of today obtain a certain amount of surgical work in out-patient clinics during their medical course, and if it were possible for them to gain a hospital, with a rotary service, it would be to their advantage, but if they have to choose either one service or the other, as is often the case in our large hospitals, I believe the medical service would be the more valuable in the end.

The amount of work to be done in the clinic of the average large hospital is so enormous that the interne has only time for the more important surgical, or emergency cases. The opportunity of studying the needs of the nonsurgical patient is there, but there is not sufficient time to spend on them. Then again, the young house officer is more intent and more interested in the surgical side of Otology, and lacks

the initiative necessary to study these less spectacular cases. As a result, when he leaves the hospital his point of view is narrow, and he is not prepared to meet medical problems which may present themselves in his practice. The fault lies, primarily, with the staff, who in turn cannot give the time for the necessary instruction, and who are unable to arouse enthusiasm in the house officer in caring for such patients. So that when the young graduate begins his practice, it requires several years before he appreciates that there are a great many medical conditions which he must meet, if he is to be sucessful.

Very soon, as his practice increases, the surgical side seems to predominate, and to become more important, not only because of its being more lucrative, but because he can obtain the desired results. For this reason there seems to be a division in the work of the Otologist; first, those interesting themselves particularly in surgical otology; and second, those devoting their energy to nonsuppurative affections. There are those who see only the surgical side and who are too busy to give their time to anyone else. They have no time to give to the problems and symptoms of the deaf person, for example, and they either pass the case to some assistant or colleague, or dismiss the patient with the advice that there is nothing to be done; in other words, they are too busy to bother with the average non-surgical patient.

The medical problems which are met in acute surgical work are immediately appreciated, and the patient has the advantage of every therapeutic aid which will insure his recovery. The examination of blood, the study of which has become so important, and promising great development in the future, has helped us in combatting infections. Its daily examination enables us to determine the necessity of transfusion, etc. Also the study of the chemistry of the cerebral spinal fluid, intracranial pressures, etc., is very important. In other words, the average hospital patient receives the best in the way of consultations and laboratory work.

It is in private practice when we meet the nonsuppurative conditions, where the weakness in our treatment is most apparent. Even in chronic suppurative diseases, occasional danger signs of serious complications may be overlooked. The lack of proper study of X-ray findings, or the appreciation of the importance of headache, and perhaps other general or minor symptoms, are not always taken seriously. At times, a single slight deviation from normal may lead to the discovery of a grave chronic process, and it is a problem as to the best manner to insure such a patient's obtaining the thorough exami-

nation necessary. There is a great deal to be said in favor of group medicine, where the members are of equal efficiency and integrity, and if the patient understands the advantage of going from one to the other in the same building it is possible to obtain the thorough examination which he requires, at a minimum of time and cost.

The great difficulty lies in the education of the patient, and the appreciation of medical ethics. One may suggest that a patient be examined by a certain group of men, and he immediately replies that he has his "own doctor," and very often that doctor is not the one from whom that particular patient might receive the greatest benefit to himself, and be of the greatest aid to you. And yet, because of certain ethics, it is difficult to tactfully place the patient in the hands of the proper internist. Then again, it is very necessary that we, as specialists, understand the temperaments of our patients, and, if possible, choose the consultant according to whether or not his personality will appeal to a particular patient. It requires thought to be certain that each patient receives the greatest benefit possible.

I have mentioned the importance of headache. There is no other symptom which requires a more thorough examination as to its cause. For example, may I speak very briefly of a case of a young man, whose only subjective symptom was that of a very slight, indefinite headache? There had been a slight discharge from the middle ear for a number of years, but so slight that he paid little attention to it. So objectively, there was nothing other than a small perforation in the anterior segment of the drum, and a slight sagging of the superior canal wall. And yet, at the operation, the dura mater was entirely bare, and the lateral sinus obliterated. At times, the headache assumes the form of a general frontal neuralgia. I have two cases in mind, one was operated on for mastoiditis in London, and the other was advised to have a frontal sinus operation; and in both cases the cause was due to an old spinal injury from an accident. The pain was entirely relieved by appropriate spinal treatment. Then, there are the numberless general causes of headache, which may be more or less easily found, and here we cannot omit one of the common and most important causes, namely, constipation. Practically every deaf person complains of having had constipation for years, and we all know how futile the cure is, and also the far-reaching effects of toxemias which it causes. If we do nothing else than to relieve a patient of such a condition, the time and money will have been well spent.

Vertigo is another most common, yet important, symptom to which, unfortunately, the name Méniéres' disease is still attached. A true hemorrhage of the labyrinth is very rare, but aural vertigo, which

may give the "Méniére symptom complex," is a very common condition. You have all seen numbers of such cases, where the diagnosis lay between a toxic neuritis and an acoustic tumor. There have been several cases in my experience, that have been saved from intracranial operation by the simple removal of some carious teeth or infected tonsils. Vertigo is an important sign of an extension of an infectious process beyond the confines of the tympanic cavity. There may be lessened activity in one or more of the semicircular canals in a case of suppurative process, but unless the aurist appreciates the necessity of eliminating *other* causes of vertigo, his deductions may lead him very far astray.

Tinnitus, a most distressing symptom, often requires a thorough medical examination of the patient before the cause of it may be found. Just because a patient is deaf does not necessarily mean that the accompanying tinnitus cannot be helped by other means than aural treatment. The circulatory system should be studied, and a blood picture should be observed. A study of the endocrines has proved of great importance; a normal metabolism test does not always show a deficiency in thyroid; it may be necessary to administer it simply as a therapeutic test, as in a case of a young woman, who came for an almost total loss of the hearing in one ear, and whose metabolism test was normal. She complained of a dry skin and her hair became coarse. After two weeks of the administration of the thyroid extract, her hearing increased 50 per cent, and she was able to return to her school. After all the surgical problems are solved, such as the elimination of foci of infection, etc., and the local treatments, which may or may not be of use; it is after *all* these things are finished that the real work of the specialist should begin.

In an interesting and helpful paper by Dr. Burt Shurly, on "Some Psychologic Problems in Otolaryngology," he emphasizes throughout the necessity of the study of the individual patient, and he also regrets the passing of the family doctor. Those young men who specialize in Otolaryngology should be made to appreciate that the treatment of deafness must necessarily occupy a large portion of their time, and that in order to be successful they must be willing to be patient and cheerful, and be willing to sacrifice time. I often ask my students why they took up medicine. Whether they thought it a divine calling, or because it might prove interesting. Very few do it with the idea of its bringing a large monetary return, but many specialists are apt to judge success from a purely financial standpoint. It is not necessary to speak of the problems of the deaf. We all know what they are. The question is, do we all give them the best

we have in us? Are we willing to spend our energies in encouraging and advising and trying to solve the problem which each one presents to us? This is, to my mind, the greatest weakness, and where the specialist fails most often. He is not willing to make the necessary sacrifice to help these deaf people, when he might be spending his time to a much greater financial advantage.

The problem of the deaf child is assuming greater and greater prominence, and yet relatively few aurists, especially the younger ones, have any interest in its solution. We all know that deafness must be prevented, and until there is an educational propaganda spread among the family physicians, school teachers and parents, and also, I am sorry to say, among the specialists, the problem never will be solved. Last year I spoke before the American College of Surgeons, upon the necessity of deafness being reported to some central commission or board of health. I was greatly pleased to find that California has made a beginning in this respect. The solution of this problem lies with the Otologists very largely, and the result depends upon us.

In conclusion, may I emphasize the fact that the field of the Otologist has grown so rapidly that the preparation of those entering the specialty must be broadened, and more time and attention should be given to the development of the basic principles which are the foundation of success. He must have personality, perseverance, sympathy and a love of humanity, if he wishes to reach and maintain the highest standards of the profession, and be of the greatest worth to his community.

5 Bay State Road.

OBSERVATIONS IN ACUTE SUPPURATIVE OTITIS MEDIA.*

DR. EDWARD RUSSELL ROBERTS, Bridgeport, Conn.

This paper concerns the study of 828 consecutive acute middle ear abscesses encountered during a period of five years (1921-1926) in office practice and it treats the subject-matter in such detail as the time allotted will permit.

The percentage of recoveries without the development of a mastoiditis requiring surgical intervention was 92 per cent.

The percentage of mastoid complications in any calendar year included in this series varied from 5 to 26 per cent; average, 10 per cent.

Sixty-seven simple mastoid operations on 63 patients (33 females and 30 males—59 single and four double) were done for the relief of a complicating acute surgical mastoiditis at ages ranging from 2 months to 56 years, 39 on the right side, 28 on the left. Singularly, all cases requiring mastoid operation in 1926 (21 of 280 middle ear abscesses) came to operation within the first six months of that year.

The drum membrane had been permitted to rupture in only 188 (16 per cent) before treatment was sought, showing that, as a rule, patients with this ear affection present themselves early in the disease.

Of this number (133), 33 came to mastoid operation, one case in four, while of the remaining 695, which were incised before rupture, 34 came to mastoid operation, one case in 20. These figures show plainly the value of early primary incision of the drum membrane before Nature attempts to establish drainage.

Nature, by rupture, had established satisfactory surgical drainage in only 34 (4 per cent).

Clinical grippe as a constitutional disease headed the list of exciting causes, exceeding scarlet fever two-and-one-half times as the forerunner of middle ear suppuration.

If the cases of those patients who considered their ear condition due to "head cold" are considered as upper respiratory grippe, grippe accounted for 60 per cent of this group of mastoid operations; scarlet fever, 15 per cent; measles, 10 per cent; tonsillitis, 8 per cent;

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*Read before the Eye, Ear, Nose and Throat Section at the Fall Meeting of the Connecticut State Medical Society, Racebrook Country Club, Orange, Conn., Nov. 14, 1929.

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whooping cough, nasal diphtheria, sea bathing and pernicious anemia, each 1.5 per cent.

The invading organisms identified from mastoid wounds were: hemolytic streptococcus, 57 per cent; nonhemolytic streptococcus, 21 per cent; staphylococcus, 10 per cent; pneumococcus, Types II, III and IV, each 2.7 per cent.

There were seven deaths, less than 0.8 per cent, three due directly to complications of otitis suppuration, two incidental deaths, and two the writer takes the liberty to presume, due to faulty management.

The causes of death by direct complications of mastoid diseases were:

Case 26: Streptococcus Meningitis of Grippe Origin: B. C., male, age 6 years, left ear. Mastoid operation on the thirty-eighth day. Drum closed on the eleventh day. Fresh middle ear abscess on the fifteenth day. Meningeal headache on the twenty-first day. Streptococcus in spinal fluid on the twenty-eighth day. Died on the thirty-first day after mastoid operation. Fifteen days after the second middle ear abscess.

It is presumed that there may be a reasonable doubt as to whether this meningitis complicated the mastoid disease, or the second middle ear infection.

Case 34: Streptococcus Meningitis, Scarlet Origin: E. W., male, age 10 years, right ear. Mastoid operation on the thirteenth day. Died on the twenty-second day after mastoid operation. Nonhemolytic streptococcus meningitis.

Case 38: Abscess, Brain Remprosphenoidal of Grippe Origin: F. D., male, age 16 years, left ear. Mastoid operation on the nineteenth day. Invading organism hemolytic streptococcus. Died 145 days after mastoid operation of brain abscess, temporosphenoidal Had Gradenigo's syndrome, septic symptoms, sinus and jugular operation and cerebral exploration in the interval.

Incidental Deaths:

Case 2: Exhaustion in the Course of a Pernicious Anemia: C. G., female, age 58 years, right ear. Mastoid operation on the twenty-first day. Died five days after operation of exhaustion.

Case 57: Nephritis of Scarlet Origin: E. D., female, age 5 years, double ear. Mastoid operations on the eighteenth and twenty-ninth days. Organism hemolytic streptococcus. Died 88 days after first mastoid operation of nephritis.

Cause of Death Classified as Through Faulty Management:

Case 58: Streptococcus Cellulitis: W. H., male, age 2 months. right ear. Onset questionable. Advice refused eighteen days. Subperiosteal abscess the size of a teacup. Died 29 days after mastoid operation of toxemia exhaustion. Entire scalp sloughed before death.

Case 51: Septicemia of Grippe Origin: L. B., female, age 7 years, right ear. Subperiosteal abscess had been opened by Wiles' incision 10 days before I saw patient. Hemolytic streptococcus septicemia, polyarthritis, endocarditis. Immediate simple mastoid, sinus and jugular operations. Died next day of general peritonitis.

In these 67 mastoid cavities, the lateral sinus was exposed 12 times, the dura eight, either by disease or unintentionally in the course of operation.

In no case did these exposures influence the final outcome, septic or intracranial complications, as all recovered, except in the last-mentioned patient.

Mastoid disease was uncomplicated in 92.5 per cent.

The incident of death in the mastoid group through complications, direct, incidental and through faulty management, if you will, was 10 per cent.

At the conclusion of the primary mastoid disease in the 56 recovered cases all but one had intact drum membranes, this with a dry tympanum.

Practical hearing defects exist in two cases (28-61), right ears, uninfluenced by treatment.

Sixteen of these mastoid patients have to date suffered 26 subsequent suppurative middle ear infections, of which nine developed infection in the mastoid scar. All healed by simple drainage.

SUMMARY.

Number of *acute purulent ears,* 828. Number of *recoveries,* 761 (92 per cent). Number of *mastoid operations,* 67. Number of patients, 63 (single, 59; double, 4).

Sex: Female, 33; male, 30.

Side: Right, 38; left, 28.

Ages: Two *months* to 56 *years.*

Ruptured Drums: 188 (16 per cent). Mastoids developed *1* in *4.*

Unruptured Drums: 640 (84 per cent). Mastoids developed *1* in *20.*

Causes: Grippe, 60 per cent; scarlet, 15 per cent; measles, 10 per cent; tonsillitis, 8 per cent; nasal diphtheria, 1.5 per cent; sea bathing, 1.5 per cent; whooping cough, 1.5 per cent; pernicious anemia, 1.5 per cent.

Organisms: Hemolytic streptococcus, 57 per cent; nonhemolytic streptococcus, 21 per cent; staphylococcus, 10 per cent; pneumococcus, Types *I, II, III, IV*, 2.7 per cent.

Deaths: 7.5 per cent. *Causes* (Direct): *a.* Meningitis, 2; brain abscess, 1. *Causes* (Incidental): *b.* Pernicious anemia, 1; nephritis, 1. *Causes* (Faulty Management?): *c.* Streptococcus cellulitis, 1; *d.* septicemia, 1.

Exposures: Sinus, 12; dura, 8.

Mastoid Disease Uncomplicated: 92.5 per cent. Dry ears, 59 (100 per cent); damaged drums, 1; damaged hearing, 2. *Recurrent otitis,* 16 patients, 26. *Infection of Mastoid Scar,* 9.

Years	1921	1922	1923	1924	1925	1926	Total
OMPA	38	89	145	115	161	290	828
Mastoids	10	5	14	8	9	21	67
Percentage	26%	5%	9%	8%	6%	8%	average 10%

144 Golden Hill Street.

OTITIC PYEMIA WITHOUT SINUS THROMBOSIS FOLLOWING RUPTURE OF THE RIGHT TYMPANIC MEMBRANE.

Dr. T. E. Beyer, Denver.

Instances of otitic pyemia without attendant thrombosis of the lateral sinus are being reported with increasing frequency. A review of the literature was published in 1928[1]. To this may be added the following case, which presents a number of interesting and unusual features.

Case Report: R. M., male, age 64 years, presented himself for examination on March 3, 1930, with the following history: Yesterday while attempting to remove impacted cerumen from his right ear with a match, he experienced a sudden excruciating pain, which has persisted up to the present time. He has no other complaint.

The patient's past history is irrelevant with the exception that both ears discharged for a period of two weeks about a year ago.

Examination revealed a well developed, well nourished man, who is evidently in great pain. The nose is negative. There is a mild pharyngitis. The left ear is normal.

The right external auditory meatus is apparently normal. There is no evidence of furunculosis. Otoscopic examination shows that portion of the drum membrane below the level of the umbo to be missing. The remaining portion, including Shrapnell's membrane, shows neither infiltration or inflammatory discoloration, though the lower edge is covered with dried blood. The ear is dry.

With the hope of preventing a middle ear infection, the external auditory canal was sterilized with hexylresorcinol. But our hopes were not realized. In the course of a week, the patient developed a purulent infection, accompanied by pain and temperature, which necessitated his removal to the hospital.

The patient entered Mercy Hospital on March 11, 1930, with temperature, 102.6°; pulse, 100; resp., 24. Blood count: W. B. C., 12,200; polys., 80 per cent; hmgb., 90 per cent; urine, negative.

	Temp.	*Pulse*	*Symptoms.*
March 12,	99-104	90-120	Severe headache.
March 13.	97-101	80-96	Pain in the left thumb.
March 14,	99-103	80-100	Pain in the right mastoid and left thumb.
March 15,	103-104.8	100-110	Pain in the right mastoid.
March 16,	101-104.6	90-120	Chilly.
March 17,	99-104	100-120	Slight chill.
March 18,	101-104	85-115	Pain in the left thumb, elbow and knee.

Noteworthy is the fact that the thumb showed none of the classical signs of inflammation except pain, hence little significance was attached to this complaint. With involvement of the elbow and knee on March 18, however, there was left no doubt in our minds that we were dealing with an otitic sepsis that warranted exploration of the lateral sinus. X-ray of the right mastoid on March 19 showed this to be cloudy.

Operation, March 20, 1930. Coalescent mastoid. Sinus plate intact. The sigmoid sinus was laid bare for about 4 c.m. It was normal in appearance, pulsated, and filled rapidly from either end. In view of such apparently normal findings it was deemed advisable not to disturb it and the wound was closed in the usual manner. Culture showed short-chained streptococci.

Following the operation, the patient grew extremely septic. On March 23, he developed a generalized jaundice. The periarticular abscesses of the elbow and knee pointed too late to warrant operative interference. Death occurred on March 25, 1930.

Autopsy report of Dr. A. W. Freshman follows: Autopsy report, R. M., March 25, 1930:

External Examination: The body is that of a well developed white adult male. It has been embalmed. There is an icteric discoloration of the skin. Over the mastoid region of the right temporal bone is a recent operative incision measuring 6 c.ms. in length. Its edges are held together by sutures, through which protrudes a gauze drain. There is a bloody discharge from the right ear with laceration of right tympanic drum. On the back of the neck is a wart, 1 c.m. in diameter, soft to touch. Over the extensor surface of the left arm, and including the elbow, is a large swelling, with reddish discoloration. A like lesion is present over the left calf. Rigor mortis is present.

Internal Examination: The body is opened by the usual longitudinal incision. Panniculus adiposis well developed. Peritoneal cavity holds a small amount of clear straw-colored fluid. Its surfaces are smooth; organs normally disposed.

Thoracic Cavity: The lungs lie free in their cavities, which are smooth. The left pleural cavity holds 200 c.c. of clear straw-colored fluid. The upper lobe of the left lung crepitates, the lower lobe is more firm. Its surface is red in color. Cross-section presents a reddish surface to the lower lobe, which exudes frothy fluid on pressure. Right lung presents the same picture to the lower lobe. There are no areas of consolidation.

Heart: The pericardial sac holds a few cubic centimeters of clear straw-colored fluid. Its surfaces are smooth. The heart is normal in

size and shape. The right side is heavily infiltrated with fat. Along the intima of the first part of the aorta and its thoracic portion are atheromatous changes. The coronaries are thickened and firm. Mitral valve thickened at base of leaflets but appears competent. Musculature flabby.

Abdomen: The spleen is about twice normal size. Cross-section presents everted edges, with soft pulp.

The kidneys are enlarged, capsule comes off easily, leaving a smooth, grayish surface, mottled with reddish areas. Cross-section presents the normal markings, with punctate reddish areas in the cortex. The organ is softer than normal.

Nothing noteworthy found in intestines.

The liver is slightly enlarged. It is reddish yellow in color. Cross-section presents a smooth surface with a fatty appearance.

Head: The brain was removed in the usual manner. Nothing noteworthy found. Sinuses free from clot or other abnormalities. Recent mastoidectomy on right side, exposing lateral sinus; it is covered by a gauze pack.

Anatomical Findings: Left hydropleural effusion. Pulmonary congestion, lower lobes. Arteriosclerosis of aorta, coronary vessels and mitral leaflets. Chronic myocarditis. Acute splenic tumor. Acute parenchymatous nephritis. Fatty degeneration of liver. Acute otitis media, right. Laceration of tympanic membrane, right. Acute mastoiditis, right. Recent mastoidectomy, right. Icterus. Abscess, left arm and leg.

Cause of Death: Septicemia following acute otitis media, right ear.

COMMENT AND CONCLUSIONS.

The dangers of injuries to the eardrum are too well illustrated to require further comment. The premonitory symptom of otitic sepsis, the pain in the left thumb, was at first disregarded. Not until the elbow and knee were involved did we recognize a metastatic infection.

That this case is one of otitic pyemia without thrombosis of the cranial sinuses cannot be disputed.

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209 Sixteenth Street.

SIMULTANEOUS MENINGITIS AND SURGICAL MASTOIDITIS; A SURGICAL DILEMMA. RECOVERY.

Dr. Virginius Dabney, Washington, D. C.

An undernourished girl, age 15 years, was brought to the Episcopal Hospital late at night, semiconscious and able to walk only with the assistance of a helper at each side, obviously a critically ill patient. However, the reason for seeking admission to the hospital, as given by the parents and the family doctor, was merely that she had had a discharging ear for some days, with headaches, and didn't seem to improve with the "usual remedies." This simple history is all the more astonishing in view of the frank meningeal symptoms that were soon found on giving her the usual examination preliminary to admission to the hospital. The significance of headache in these serious cases of ear discharge, I have always felt, was not so well recognized as it should be[1], as indicative of a probable meningitis, and here especially it had existed for a week or 10 days, unquestionably giving warning of the impending, if not actually existing, infection of the meninges. It is true that the infection did not travel from the mastoid into the meninges, but the attendant should have thought so, if he had been alert to the meaning of headache when associated with ear disease. The presence of a meningitis would thus have been discovered by him, though its origin would not have made any difference.

Examination showed an acute discharging ear of a fulminating kind, with certain involvement of the mastoid cells, but even this serious condition did not account for the grave symptoms the patient showed, which were, in brief: A positive Kernig and Babinski, all reflexes exaggerated, great pain and stiffness in the neck, fever of 102.3° F. The patient herself complained chiefly of great headache and persistent vomiting. Could any attendant wish for a clearer picture of meningeal disease? Yet she was brought into the hospital merely for ear treatment. Two hours later, a spinal puncture was done and showed a cloudy fluid with a cell count of 2,500 per c.c.m. under slightly increased pressure. The history covering the ear disease was that an earache two weeks before had been allowed to go five days before any puncture of the drum was done, after which the discharge was profuse for nine days. I found the mastoid sensitive to light pressure, the drum bulging and some deafness on that side. The inevitable conclusion of examination and history was that

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I faced a meningitis caused by an extension from the mastoid cells of suppurative disease there into the temporosphenoidal lobe. Thus, I could not believe that anything was to be gained by a mastoidectomy; in fact, I felt then, and still feel, that such an operation would have killed the patient, for reasons that are too obvious to merit mention. The next morning, the headache and stiffness in the neck were much less, but photophobia and irritability of the reflexes were still evident. To my great satisfaction, Dr. H. H. Kerr, a surgical consultant and neuro-surgeon, agreed with me and suggested that we institute the following treatment: A lumbar puncture every six hours unless patient asleep, a high caloric diet and great quantities of fluid. Thus, we drew off four or five times a day from 30 to 35 c.c. of spinal fluid, with great relief of both subjective and objective symptoms after the first four punctures. She was also given internally 10 grains of urotropin every four hours, and for the next five days showed such remarkable resistance, and even mastery of the meningitis (*i. e.*, less headache and neck stiffness, reflexes much less irritable), that we were led to delay any operation on the mastoid still longer. However, the photophobia and Kernig sign were still evident and, of course, the otorrhea profuse and the mastoid tender. A Gram negative organism was finally recovered from the spinal fluid, and the hemolytic streptococcus from the ear discharge, which seemed to justify the view I had now come to hold: that the meningeal disease and that in the middle ear and mastoid had no relations of cause the one with the other. I felt that an influenza might be the cause of the former, and this germ was finally induced to grow from the spinal fluid culture. After the tenth day, spinal punctures were stopped, as the cell count had fallen to 15 to the cc.m., the reflexes were normal and the temperature had gradually fallen from 103° F. to 99° F. Meantime, the local signs indicated a slowly but certainly spreading invasion of the mastoid process, but the necessity of operation had to be ignored till I felt certain that the meningitis was at least quiescent, if not entirely gone. On the tenth day, the temperature still being 99° F., I was undecided as to the exact day of operation, but when it suddenly rose to 102° and then fell to 101° in 36 hours, I knew that the hour had struck, if the patient were to be saved, as it was evident that infection was being thrown into the circulation in too great quantity for the patient's resistance to meet. Moreover, the tip of the mastoid had sloughed off and the pus extravasated into the neck below, creating a Bezold mastoiditis, a condition actually found at operation and drained by a counter-opening and fenestrated tube lower down in the neck. The condition within the mastoid was what would naturally be found where the organism is the hemolytic streptococcus

and the operation delayed for two weeks, which included exposure of the entire vertical limb of the lateral sinus; but, strange to say, the floor of the middle fossa was smooth and healthy, further evidence, if any were needed, that the meningitis was not of otitic origin. In five days, the fever fell from 103° to 99° F., but on the sixth day suddenly rose to 101°, and the patient complained bitterly of pain in the vulvar region, which showed an enormous induration of the right major lip. This did not point for two days, but when incised a large amount of pus was found to have burrowed down to and under the periosteum of the symphysis pubis. This wound healed in 10 days and the mastoid in seven weeks.

For the first two weeks of this patient's illness, vomiting was most persistent and a constant source of worry and confusion to me. It materially interfered with her nutrition, as she could not eat, or retain what she did eat, and not only did this prove serious in depriving her of fighting strength, but her emaciation became so extreme that the prevention of bed sores became a problem ever to be met. Whole blood transfusion was used twice, together with every means I could devise to tempt her appetite and overcome the nausea and vomiting. No progress was made in this respect till the mastoidectomy was done, but after this she immediately began to gain weight, eat well and cease to complain of nausea. Apparently these symptoms were of septic origin, as they disappeared at once after operation on the mastoid.

While the bacterial findings of the spinal fluid and the mastoid pus seemed to prove that the two infections were of independent origin, they did not by any means insure the patient's recovery for that reason. An influenza meningitis is usually fatal and would be all the more likely to prove so when complicated by a fulminating surgical mastoiditis and the patient's resistance lowered by the hemolytic streptococcus causing that disease.

CONCLUSIONS.

1. Recovery from an influenza meningitis is rare; when complicated by surgical mastoiditis of hemolytic streptococcus origin, so rare that I know of no other case.

2. This case is illuminating, in that it demonstrates a fact impossible of over-emphasis in surgery: Not operating may save a life fully as well as operating. A mastoidectomy would certainly have killed this patient in the first eight days of her meningeal illness, and equally as certain is it that she would have succumbed without it after the first 15 days.

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RADIUM SEED IN THE ETHMOID.*

DR. RUDOLPH KRAMER, New York.

The patient, a man in his middle sixties, was first seen by the ophthalmologist, Dr. Robert Lambert, whom he visited in May, 1929, for the purpose of having spectacles prescribed for some special work he was doing. His fundi were normal at that time. On July 3, 1929, two months later, he complained of impairment of vision in his right eye. His vision was 15/50, the right nerve was paler than the left, there was definite field contraction on the temporal side of the right eye and the right color fields were gone. One month later, on Aug. 5, his vision was more impaired, finger seen at 4 feet, and a diagnosis of primary optic atrophy was made. Dr. Lambert referred the patient to the internist, Dr. Richard Brickner, who reported that the only lesion of significance present was lues of long standing, for which treatment had been administered many years before. Wassermann reaction was 4 plus. The patient now for the first time gave a history of having had three removable radium emanation seeds inserted in his right ethmoid region, one-and-a-half years before. This had been done, apparently, in an attempt to treat a chronic ethmoiditis of very many years' duration. Only two of the seeds had been found and removed; the third had remained in place.

The patient was then sent to me for examination of the nose. He showed a bilateral sphenoethmoiditis with a partial exenteration of the right ethmoid. X-rays of the skull, taken in August, 1929, showed a radon seed on the right side in front of the anterior sphenoid wall, just internal to the orbital wall, and just below the floor of the skull. The sinuses were all dark. The question of the etiology of the optic atrophy and the procedure to be followed in its treatment then arose. There were three possible causes as agents: *1.* Lues, which was finally considered least likely because the lesion was unilateral, and although a unilateral optic atrophy may appear in this condition it is rather unusual; *2.* chronic ethmosphenoiditis affecting the optic nerve; and *3.* the effect of the radium seed near the optic nerve, either by the action of the radium on the vessels of the optic nerve or on the nerve itself—effects which have been known to follow radiation near the eyeball, or by irritation and fibrosis as the result of a foreign body near the nerve. The decision as to the

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therapy to be employed, if any, was a difficult one to make; first, because of the unlikelihood of a satisfactory result in the presence of an existing optic atrophy; and secondly, because of the danger in operating on this patient, a man well over 60 years and afflicted with lues. The probability of the radium seed or the ethmoiditis causing the trouble was considered sufficiently great to make us decide on operative interference. On Aug. 8, a little over two months after his eye symptoms were first noted, I operated on him under local anesthesia, doing the sphenoethmoid operation of Dr. Sidney Yankauer on the right side, where I found polypoid degeneration, granulation tissue and a small amount of pus in the cells. The radon seed was found after some difficulty, just in front of the upper anterior sphenoid wall, below the floor of the skull and buried in the mucosa covering the orbital mesial wall. Radon seeds are from 4 to 5 m.m. in length, to which a thread is attached so that they can be extracted from the tissues. Apparently in the attempt to remove the seed a year-and-a-half before, the operator had cut the thread close to the seed and was unable to remove the metal capsule. The patient made a perfectly uneventful convalescence from the operation and left the hospital three days later. One week later, there was a slight increase in the visual fields, but a month later the vision of the right eye was gone. His left eye has remained normal up to the present, which speaks against luetic origin.

The fact that the vision of the affected eye disappeared after the ethmosphenoid operation is an argument against the ethmoiditis being the cause of the optic atrophy. As a rule, the eye symptoms either clear up or at least remain stationary when an ethmoiditis is a responsible factor and the ethmoid and sphenoid have been opened up. It appears to me most plausible that the delayed action of the radium, perhaps coupled with the foreign body effect of the platinum seed in close proximity to the nerve, caused the optic atrophy by interference with the blood supply.

This case, aside from the rare combination of circumstances present, is one more illustration of the wisdom, wherever and whenever radium is buried in the tissues, of employing removable radium emanation seeds and of removing them—otherwise disastrous consequences may follow.

121 East 60th Street.

RECOVERY OF AN ACUTE OSTEOMYELITIS OF THE SKULL FOLLOWING AN OPERATION OF THE FRONTAL SINUS.*

DR. J. FRANK FRIESEN, Los Angeles.

Acute osteomyelitis of the frontal bone occurring after a frontal sinus disease is a most formidable complication and the specialist is apt to form the conclusion that the patient is doomed. This is especially true if it develops after an operation on the sinus. Contrary to the usual course, this patient recovered. The infection was caused by the staphylococcus aureus, which was more favorable than had it been a streptococcus or pneumococcus.

During the clinical course of this patient's illness there were several interesting features worthy of record.

Case Report: History: The patient is a girl, age 14 years, a student, referred to me by Dr. A. B. Lefler. She was admitted to the California Hospital on Feb. 4, 1930, with the following history:

A few days before admission she commenced to have pain over the region of the left frontal sinus, and tenderness and swelling of the soft tissues over the left eye. On examination the patient presented a toxic appearance, with a temperature around 103° and a pulse of 120. There was edema over the region of the left frontal sinus and the eyelids of the left eye were swollen and almost closed. The left nasal passage was filled with a purulent secretion. Physical examination was otherwise negative.

Laboratory Report: Blood: Hemoglobin, 63 per cent; R.B.C., 3,472,000; W.B.C., 10,700; polys., 78 per cent; lymphs., 17 per cent; large monos., 5 per cent.

X-ray Report: Stereo films of nasal accessory sinuses show both frontals and left antrum to be cloudy and a cyst present on the floor of the right antrum. Lateral view shows faint cloudiness in sphenoid area, probably of no significance.

Patient was operated on Feb. 5, 1930, for a pansinusitis of the left side. The left anterior ethmoidal cells were removed and a large intranasal opening made into the left frontal sinus. An opening was then made into the left maxillary sinus through the inferior meatus. No packing was used.

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Findings: Left frontal sinus and left maxillary sinus filled with pus and polypoid tissue. Ethmoidal cells were mushy and degenerated. Cultures showed a pure staphylococcus aureus. Following this, the temperature receded and the patient's general condition improved for a few days. Symptoms of meningitis then appeared. The patient became irritable and developed a cervical rigidity.

She was seen on Feb. 10 by Dr. I. Leon Meyers, and his findings were as follows:

"Patient is conscious and mentally clear. No aphasic disturbances. Pupils are about equal, rather small and react to light. Ocular movements are normal; no nystagmus; deep reflexes about equal; not spastic. Bilateral ankle clonus is much more marked on the right. Brudzinski and flexion reflexes on the right; tendency to Brudzinski on the left. Abnormal reflexes present on both sides. Marked cervical rigidity; slight Kernig; bilateral papilledema 2 to 3 diopters, with considerable blurring of discs. Tenderness of skull in region of left frontal. *Diagnosis:* Intracranial involvement in region of left frontal. Spinal fluid to be examined, cell count, globulin, sugar and organism; note pressure."

A spinal fluid taken this date showed pressure 250 m.m. cloudy fluid cells, 1,152 per c.m.m. Globulin moderately increased, sugar m.g. Gram stain of smear of centrifugalized sediment showed numerous polymorphonuclear cells; no bacteria. When stained for tubercle bacillus, negative culture, sterile after 48 hours.

The patient's temperature at this time was around 100° and pulse ranged from 70 to 80, irritability returning, with drowsiness. X-rays were again taken on Feb. 10, with the following findings: Stereo A.P. films of left frontal sinus shows this sinus as still cloudy, slightly more than right.

In the face of an intracranial involvement, it was decided to drain the left frontal sinus externally. Clinically, the right frontal was negative, but the X-ray report indicated some involvement, and for that reason both frontal sinuses were opened.

On Feb. 11, patient was reoperated. Small, round trephine openings were made in the anterior wall of each frontal sinus and the left sinus was entirely cleaned out. A small rubber tissue drain was left in the right frontal sinus and a large rubber tube in the left. The patient left the table in fairly good condition.

Findings: Right frontal containing an inflamed mucoperiosteum which bleeds readily on sponging, but no pus or secretion was seen. Left frontal was filled with thick, purulent secretion, the sinus extending way up and also laterally, making it a large, shallow sinus.

There are no openings or dehiscences, nor is there any necrosis seen in the posterior palate. Patient left the table in fairly good condition.

Following this, the patient's temperature gradually returned to normal and it was thought that everything was going along nicely, when new symptoms made their appearance. The patient developed excruciating headaches and the irritability and drowsiness increased again. There was an itching and creeping sensation, widely distributed over the whole body. She began to have projectile vomiting, a subnormal temperature and a very slow pulse, ranging from 50 to 60.

The patient was again examined by Dr. Meyers on Feb. 21, whose findings were as follows:

"Patient is extremely irritable. Deep reflexes increased on left side, as well as right. No Babinski on left side. Patient looks sick. Some cervical rigidity. Pupils are unequal; right greater than the left. Right face is weaker than left. Deep reflexes are more active on the right side. Positive Brudzinski, positive flexion reflexes on the right side; no astereognosis; no aphasic disturbances. Ocular movements are normal. Papilledema with alterations of the margins of the discs, 3 to 4 diopters swelling, more marked on the left. Pupils are very slow. Temperature tends to be subnormal, leukocytosis, 12,000; abnormal reflexes present on both sides. No Kernig. *Diagnosis:* Abscess in the prefrontal area on the left side."

At this time, Dr. Carl W. Rand saw the patient. X-rays of the skull were repeated on Feb. 22 and showed an area of osteomyelitis in the left frontal region, measuring approximately 5x7 c.m. in diameter. Our impression was osteomyelitis of the skull, epidural abscess, possibly subdural, and frontal lobe abscess. Exploration was advised and after considerable reflection on the part of the parents was consented to.

Operation was carried out at 8:30 p. m. by Dr. Rand and Dr. Friesen. A curvilinear incision was made, mostly above the hair line in the left frontal region so as to expose the area of osteomyelitis beneath. On turning back the flap, the periosteum was found to be thickened. The bone was rather honeycombed and soggy. Upon trephining the skull, an abscess was found oozing from the diploetic spaces. An area of diseased bone, about 5 to 7 c.m., was removed. This did not quite go to the limits of the osteomyelitis as the operator did not wish to reinfect fresh or clean bone. A large epidural abscess was found, burrowing posteriorly. This contained greenish pus and about an ounce was evacuated. Dura was everywhere thickened and polypoid. The incision in the eyebrow was lengthened and a window in the left frontal sinus was enlarged. Four

gutta-percha drains were placed between the dura and the skull, one rubber drain was placed in the frontal sinus. The condition of the patient was critical. A culture from the skull showed pure staphylococci aureus.

Following the operation the patient's condition improved and the pulse returned to normal. The wound in the skull was discharging pus freely. Three weeks later the patient again developed symptoms of intracranial pressure. X-rays of the skull were repeated and showed a fresh area of osteomyelitis. The patient was reoperated on March 17 and a new area of diseased bone removed.

According to the usual history of these cases of osteomyelitis of the skull, we thought that our case was hopeless, but her condition gradually improved and she was discharged as a convalescent, April 20, after being in the hospital 75 days.

Follow-up Record: During the subsequent weeks, small sequestra of bone were discharged, and after several months there still is a little secretion coming out of the wound.

COMMENT.

Following the frontal sinus operation, this patient developed symptoms of meningitis and brain abscess. It was decided to drain the abscess which had been localized in the left frontal lobe. X-rays were taken preparatory to the operation and revealed the presence of the osteomyelitis. This shows the importance of a preoperative X-ray examination. It is significant that both the meningitis and the intracranial pressure caused by the epidural abscess were distinctly due to the osteomyletitis and the subsequent irritation and pressure on the dura. The symptoms of the osteomyelitis in this case were not those of general sepsis, but simply evidenced by irritation and pressure on the dura and pressure on the brain. There was a rapid spread of the infection through the medullary spaces of the frontal bone. The infection seemed to jump at least 5 c.m. backward, leaving healthy bone above the upward margin of the frontal sinus.

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INTERESTING OBSERVATIONS IN MORE THAN 100 EXTERNAL ETHMO-FRONTAL OPERATIONS.*

DR. W. LIKELY SIMPSON and DR. SAM H. SANDERS, Memphis.

The object of this paper is to present a number of observations made in a series of over 100 cases of ethmoid and frontal sinusitis that were operated upon by the external route. No attempt will be made to discuss the operative technique, as it was so ably described by Lynch in 1921, and only a few modifications have been made that do not alter the fundamental principles of the operation. Practically all of these cases have been operated upon under local anesthesia with morphin and scopolamin analgesia and the interesting points in the latter will also be mentioned.

Preoperative Analgesia: The preoperative administration of hypodermic injections of morphin and scopolamin in varying doses, depending on the size, age and mental state of the patient, is considered very important. Formerly morphin sulphate gr. ¼ and scopolamin hydrobromid gr. 1/150 were used. Within the last two years we have found that much larger doses can be safely administered to individuals between the ages of 18 and 50 years. Patients below the age of 18 and above 50 years must be considered individually as some can tolerate morphin better than others. The weight of an individual must be considered. We have found that an obese one, of hypothyroid type, cannot tolerate either drug as the more active and energetic type. The easily excited person is very susceptible to scopolamin but reacts nicely to small doses combined with larger doses of morphin. The patient that fears the operative procedure tolerates both drugs well, probably because the fear is only a temporary state of excitement. In administering ¼ gr. of morphin and 1/150 gr. of scopolamin or one H. M. C. Tablet No. 1, at 45-minutes or one-hour intervals, three doses can be administered to the average patient, weighing 150 pounds or over, without risk. The last dose being given 10 minutes before the patient goes to the operating room. Only three cases (two of which were physicians) have shown untoward effects, these being manifested by a form of mania and unwillingness to remain quiet. The sensations of falling and smothering were present. None of these three patients remembered any event that took place in the operating room. One had to be given a general anesthetic, one

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was restrained by force, the other by persuasion. The average patient became sleepy, unconcerned and often expressed himself as being drunk. There has been practically no complaint of pain during operation, yet the cough reflex is not abolished and the patient can expectorate any blood that may enter the throat. The respiratory rate is diminished, but it can be raised, when desired, by arousing the patient or engaging him in conversation. We have often been cautioned to beware of scopolamin idiosyncrasies but we have been unable to find a case report where scopolamin has been proven to be the cause of a patient's death. In administering this form of analgesia, we see, or have our nurse see, that the patient before the last injection is given and if necessary the dose of either drug may be increased or decreased, according to indications. One patient was given 1½ gr. of morphin and 1/75 gr. of scopolamin before the desired effects were obtained. No ill effects were noticed.

Local Anesthesia: One or 2 c.c. of novocain is injected into the region of the incision. A larger quantity distorts the parts enough to make one wonder where the incision will be when the solution is absorbed.

Narrow gauze strips saturated in a solution of 4 per cent cocain and equal parts of adrenalin are packed in the wound to prevent bleeding or anesthetize the tissue when either is desired. We have not seen any toxic effects from cocain when it is used combined with large quantities of adrenalin.

General Anesthesia: Much more bleeding occurs under general anesthesia. The anesthetist is usually in the way at one time or another during the operation. The patient is unable to cooperate with the operator and many other disadvantages have been encountered in the use of general anesthesia.

Skin Preparation: The entire face is painted with a solution of acetone, 10 per cent; alcohol, 50 per cent; water, 35 per cent; and enough mercurochrome to make a 3 per cent. Skin infections have occurred less frequently than when prepared with 3 per cent tincture of iodin, or picric acid, etc.

Incision: The incision is most easily described with reference to the internal canthus of the eye. The skin is fixed with a finger of the left hand. An incision is made along an imaginary line, half the distance between the inner canthus of the eye and the bridge of the nose, beginning about on a level with the inner canthus, extending upward and curving with the orbit well below the brow. The length of the primary incision depends upon the size of the frontal but it should not extend past the supraorbital notch, as the mucous mem-

brane can often be removed from the frontal without cutting the supraorbital vessels and nerve. In a case with an average size frontal the incision is from three-eighths to five-eighths inches in length. Because of the looseness and mobility of the skin in this region the skin can be retracted and the incision extended through the underlying tissues. A large exposure is obtained where only a small skin incision is made.

Hemostasis: About four retraction sutures are inserted at this time through the skin and soft tissue. A piece of gauze wet in the cocain and adrenalin solution is then packed into the wound to stop bleeding. No vessels are tied. We formerly produced hemostasis by ligating these small vessels with catgut, but it has been found that the cocain and adrenalin will accomplish this practically as well and when a persistent bleeder does occur it can be clamped with a hemostat and thus a dry field is obtained without the use of any suture material. The orbital periosteum is elevated from the ethmo-orbital wall. The anterior ethmoid vessels and nerve are cut at this time to prevent the orbital periosteum from tearing, as it practically always does when the orbital structures are retracted before the vessels are cut. Formerly much care was taken to ligate the anterior and posterior ethmoidal vessels. An instrument was even devised for this purpose. It seems to us that this procedure is seldom necessary. If a small piece of gauze wet in the adrenalin and cocain solution is allowed to remain over these vessels for a few minutes after they have been cut, the bleeding will usually stop. This gauze can be left while the operator elevates the periosteum from the frontal floor. If the bleeding persists, after this has been done, the vessels can be picked up with a small hemostat and ligated very easily. In some of our more recent cases, and especially those with large ethmoids and frontals, where more of the ethmo-orbital wall has been preserved and the anterior ethmoidal vessels have been disturbed, it has been noted that much bleeding occurs while working in the anterior ethmoidal cells. If the anterior ethmoidal vessels are cut this area is practically bloodless.

Removal of Frontal Mucosa: After opening the frontal and removing the floor, an attempt is made to elevate and remove the lining membrane of the cavity. The edge of the membrane is elevated and dry gauze packed under it. At times the entire membrane can be removed intact. Small mirrors are used to view the angles and corners of the sinus. If any tissue is left it can be removed with curettes. Partial bony septa are removed when possible and especial attention given the angles and nooks made by these partitions. It is our

impression that the floor of the frontal does not have to be removed at the outer angle if the entire membrane can be removed without it. Only when all the mucous membrane cannot be removed from the outer angle is it necessary to cut the supraorbital vessels and nerve in order to obtain more exposure for removing the floor and any of the remaining mucosa. In fact, we have found all of the larger frontals very deep and therefore easy to rid of the lining. The use of mirrors for the purpose of viewing the recesses, as well as the entire sinus, has been a great aid in removing the small pieces of tissue that are so necessary to obtain desired results. We feel that the use of these mirrors is an important step in the operative procedure.

Ethmo-orbital Wall: In the cases with large frontal and ethmoid as much of the ethmo-orbital wall as practical is left intact to prevent the displacement of the orbital contents. Less retraction of the eye has been noticed in these cases where this has been done.

Tears in Orbital Periosteum: The orbital periosteum is often torn, but no complications have been known to arise, except probably an ecchymosis, which is of little importance. In a few cases the orbital periosteum was adherent to the bone. The bone was rough and it was apparent that a previous periostitis had existed. We have obtained specimens of the bone with attached mucous membrane of the ethmo-orbital wall and also the bone and mucous membrane of the floor from the frontal from most of these cases and hope to present later a report of a pathological study of these specimens.

Ethmoid: We have found the external approach to the ethmoids a great advantage over the intranasal for thorough exenteration. One obtains a better view of the operative field, landmarks are definite and the supraorbital cells can be exenterated, as well as those small anterior cells around the frontal duct. One or more of these latter cells have been found intact in practically all of the cases that have had intranasal ethmoid operation, even though the operator was considered very competent.

Sphenoid: No advantage is seen in the external approach on the sphenoid but the anterior wall can be as easily removed on completing the ethmoid exenteration. We have observed less tendency for granulations to form around the sphenoidal opening, less discharge in the nose and more rapid recovery in those cases where the sphenoid mucosa was removed. Bleeding has been of little moment.

Middle Turbinate: We do not remove the middle turbinate unless it is polypoid or contains infected cells. The attachment of the middle turbinate offers convenient landmark during the operative pro-

cedure, it does not block the drainage, and we see no advantage in removing it.

Subcutaneous Sutures: We do not close the periosteum or approximate the subcutaneous structures as formerly and have even abandoned the suture to reattach the internal oblique muscle, as no benefit seems to have been derived from either procedure. Skin abscesses occur less frequently than when subcutaneous sutures are used.

Removal of Sutures: Since the short skin incision has been used, no cross cuts are needed to approximate the corresponding side. A small needle and very fine dermal or horse hair suture material is used. The sutures are removed in 24 hours. This does away with pitting or suture marks in the skin and the linear scar is hardly noticeable.

Gross Bony Change: In the operative sinus, where gross changes have been noticed in the bone, the convalescence is longer, the postoperative discomfort more severe and the nasal discharge persists over a longer period of time.

Sequela—Edema of the Lids and Orbital Tissue: Sometimes an edema of the lids and orbital tissue occurs after that following the operation has subsided. This is usually caused by an acute cold or forcing air into the orbit by sneezing, coughing or vomiting. The swelling usually subsides without any untoward effects. However, in three, in one of which the primary operation was done by us, an edema of the eye occurred at intervals over a period of a few years. Symptoms of headache, pain in the eye and the head, nasal discharge, dizziness and diplopia were quite marked. These three cases were reopened. One with a very large frontal and ethmoid. The latter was found thoroughly clean, the opening to the frontal was large, but the granulation in the cavity showed some sign of infection. In the other cases, there were diseased ethmoid cells present that had not been removed at the primary operation. No edema of the orbital tissues has occurred in any of these cases after the second operation. The last was done about eight months ago.

Diplopia: Diplopia occurs for a short time after the operation, but in this series of cases only one persisted for several months.

Complications—External Drainage: In one case the sinus refused to drain satisfactorily intranasally, even though a large Hallé probe could be inserted into the frontal. This case was reopened three weeks following primary operation. No obstruction to drainage was found. The sinus was partially filled with pus and no granulation had begun to form.

Osteomyelitis: There has not been a case of osteomyelitis in this group, but in a previously reported series there was one case that developed an osteomyelitis, followed by a brain abscess and death. This patient was operated during a subacute exacerbation of a chronic infection, which unfortunately was not pronounced enough to attract attention.

Results: No deaths have occurred in this group from the operation or postoperative complications. Recurrent infections are infrequent and those that do occur are mild and of short duration.

Deformity: In two cases with extremely large frontals and ethmoids there was a very slight, but noticeable, retraction of the eye.

Cosmetic Results: The scar from the incision cannot be seen after a few weeks except on close inspection. There is no bony depression whatsoever. In fact, the majority of the patients state their friends do not believe they have been operated externally.

CONCLUSIONS.

1. Morphin and scopolamin analgesia combined with local anesthesia has its advantages over general anesthesia.

2. A short skin incision gives sufficient exposure for the operation on an average size frontal sinus.

3. Practically all bleeding can be controlled without the use of ligatures.

4. Removal of the entire lining mucosa of the sinus is required to obtain desired results.

5. A view of the entire sinus cavity is usually necessary to remove the entire lining mucosa, and this can be easily obtained by the use of mirrors.

6. Good results have been obtained where the outer bony angle of the frontal floor has not been removed.

7. Retention of the ethmo-orbital wall prevents a displacement of the orbital contents.

8. The external route offers a safer approach and affords a better view of the ethmoid, especially the supraorbital and those cells around the nasofrontal duct.

9. The middle turbinate is a valuable landmark and does not interfere with operative procedure or good results.

10. Subcutaneous sutures are unnecessary.

11. Poor cosmetic results are no longer considered contraindications for external frontal operations.

Physicians and Surgeons Building.

DIFFERENTIAL DIAGNOSIS OF LARYNGEAL CONDITIONS.

Dr. David H. Jones, New York.

In the differential diagnosis of nearly all laryngeal conditions we have one common symptom, *viz.*, hoarseness; and, in fact, it is the earliest subjective complaint.

Hoarseness may be defined "as a husky, rough, rasping or croaking character in the sound of the voice". This calls for immediate investigation by every means we possess and one should not be content to accept the patient's statement that it is only of recent duration, when in fact, the hoarseness has been intermittent for a much longer time.

This is well illustrated by the statement of one of our patients, who dated his hoarseness from the time that he was held up and choked, and at the first examination we found a cancerous ulcerated area occupying the aryepiglottic fold and arytenoid.

Sudden acute hoarseness calling for prompt diagnosis is only found in two dangerous conditions, *viz.*, laryngeal diphtheria in children and edema of the larynx in adults and children.

Chronic hoarseness is often mistaken for chronic laryngitis, when in fact, the patient has cancer of the larynx and at our first examination we find it is inoperable.

We must remember that for clear phonation, the vocal cords must approximate, draw tense and vibrate. Any interference with this function causes hoarseness.

Tumor between the cords, feebleness of muscular action, paralysis and fixation are the main causes of the cords to fail to approximate.

Paralysis, feebleness and fixation of the cords interfere with their tension. Thickening of the cords, either inflammatory infiltration or neoplastic, cause disturbance in their vibration.

Hoarseness *per se* does not give us a clue as to the lesion. Our aim should be to diagnose it correctly.

Many of the conditions overlap and one must make his diagnosis by exclusion, and the author will endeavor to give the most important symptoms of the three diseases most frequently encountered: tuberculosis, carcinoma and syphilis.

A tuberculous patient may have syphilis and, in fact, we may find all three conditions in the same patient.

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The method of examination in the bronchoscopic clinic at Manhattan Eye, Ear and Throat Hospital follows the same procedure used by Dr. Chevalier Jackson: *1.* Very careful history, past, family and present. *2.* Laryngoscopy indirect. *3.* Laryngoscopy direct. *4.* Complete general physical examination. *5.* Roentgen ray examination of neck and chest. *6.* Blood test, Wassermann and Kahn. *7.* Therapeutic test, mercury. *8.* Bronchoscopy. *9.* Esophagoscopy. *10.* Biopsy. *11.* Bacteriology.

Chronic Inflammations—Result of: Repeated acute attacks of laryngitis. Inflammation of lymphoid tissue in tonsillar ring. Abuse of alcohol and tobacco. Sinus disease; chronic nasal obstruction. Mouth-breathing, excessive and faulty use of the voice.

Symptoms: Onset gradual. Hoarseness worse in the morning; feeling of dryness or irritation in the throat; frequent desire to clear throat. Irritable cough, with some expectoration.

Three Types—1. Chronic Catarrhal Laryngitis: Redness, vocal cords. Increased secretion forming bands across cords. No pronounced thickening of tissues. On phonation may have adductor paralysis. *2. Chronic Hypertrophic Laryngitis:* Redness with hypertrophy. Enlargement may be general either on ventricular bands or on cords. May also be subglottic. *3. Chronic Atrophic Laryngitis:* Associated with atrophic condition of the nose and pharynx.

Diagnosis: Careful, as frequently precedes carcinoma and tuberculosis.

Papillomata: Children. Infective. Similar in structure to papillomata in other regions, composed of vascular connective tissue core covered by epithelium. Hoarseness, cough. Attached to false and true cords anterior one-third. Frequently multiple. Cauliflower appearance.

Fibromata: Adults, males. Cause unknown. Polypi pedunculated forms. Either degeneration or a new formation of fibrotissue, elements of stratum proprium of the mucosa. Differ very little from nasal polypi. Small growths seldom cause trouble with voice. Hoarseness chief symptom. Rarely causes immobility of cords.

Keratosis: Extremely rare. Onset slow with hoarseness. Laryngoscopic appearance: Many minute white areas on cords resembling pieces of white blotting paper attached to upper surfaces on either or both cords. Microscopical examination: Layer of cornified epithelium, underlying which are columnar-shaped and squamous epithelial cells. Called pre-cancerous by Dr. Chevalier Jackson.

Sarcoma: Rare. Seems to belong to Ewing's type of lymphoid carcinoma.

ETIOLOGY.

TUBERCULOSIS.	CARCINOMA.	SYPHILIS.
Koch's bacillus.	Unknown.	Invasion of spirochete.
Both sexes.	Males, females postcricoid.	Inherited or acquired.
Under 40.	Over 40; females early.	Males.
Autoinfection.	Poor mouth hygiene.	*******
1-4%.	2-3%.	
Secondary to pulmonary tbc.	No relation.	Primary epiglottis.
12% early.		Tertiary epiglottis gumma.
26% moderately advanced.		
45% terminal.		Elsewhere.
	SUBJECTIVE SYMPTOMS.	
Hoarseness early (worse night).	Earliest symptom.	+
With sense of fullness.	+ + +	+
Voice weak, hollow, painful.	*******	Strong, rough, painless.
Dysphagia for fluids.	Dysphagia after ulceration for solids.	
Odynphagia.		
Pain early, later more severe.	Extrinsic early, radiating to ear.	Very little.
Hyperesthetic.		Anesthetic.
Tenderness over larynx early.	Absent early, present later.	Absent.
Cough caused by ulceration.	Absent.	Absent.
Enlarged cervical glands occasionally.	Frequent in extrinsic.	Rarely.
Emaciation early.	Late.	Seldom.
	LOCATION OF LESION.	
Posterior—one-third.	Anterior—two-thirds.	Anterior—one-third
Posterior commissure.	Cord.	Epiglottis
		Primary and
		Ventricular bands.
		Tertiary gumma.

TUBERCULOSIS.	CARCINOMA.	SYPHILIS.
	OBJECTIVE SYMPTOMS.	
Pallor, anemia—pharynx.	No change.	Mucous plaques—gumma or scar formation.
Infiltration slow, smooth edema arytenoids.	Papillary thickening Cord or Congestive thickening.	Mucous membrane, vermilion.
Mucous membrane, pale, red.	Irregular tumor.	Unilateral.
Bilateral.	Unilateral.	Generalized inflammation.
Appearance—inflammation.	No appearance of inflammation.	Rapid.
Slow.	Slow—basal. Rapid—squamous.	Rarely.
Never unilateral; partial or complete cord fixation.	Early unilateral cord fixation.	
	ULCER.	
Edge, ill-defined, shallow.	Edge, overgrown, raw, red.	Punched out and deeply undermined.
Base covered with granulations.	Cords, dirty-white.	
Healing, little deformity.	Does not heal.	Little tendency to heal, much deformity.
Nibbles.		Bites.
Epiglottis lesion on laryngeal surface.		Epiglottis lesion on anterior or lingual surface.
	PARALYSIS OF CORD.	
Right: lesion at apex of lung.	Unilateral fixation of cord, second symptom.	Left: aneurism aorta. Cicatrization may cause dyspnea.
	BIOPSY.	
Sometimes necessary.	Necessary and repeated (two pathologists).	Necessary.
	GENERAL.	
Administration of potassium.	Improvement temporary.	Improves rapidly.
Iodid—symptoms worse—edema.		
Wassermann negative.	Negative.	Positive except in some tertiary cases.
Examine chest carefully.	Repeated and careful examinations of larynx.	
X-ray chest.		
Examine sputum.		Lesions in nose.
Record temperature, pulse, respiration.	11½ months in Dr. Jackson's series 100 cases from beginning of hoarseness to time of diagnosis.	
Loss of weight.		
Absolute silence.		Skin rash.
Stopping alcohol and tobacco.		
One-tenth m.g. of old tuberculin.		

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TURNER: Nose and Throat.
114 East 54th Street.

PARALYSIS OF THE SUPERIOR LARYNGEAL NERVE AS A RESULT OF CEREBRAL HEMORRHAGE.*

Dr. F. S. Mainzer, Clearfield, Pa.

This condition is rare, as a careful search of the literature records only fifteen cases. Again, more may be seen but not recognized as such. In 1909, Mygind reviewed thirteen cases. Tobia reported a case in 1910, and in 1930, New and Childrey report a case associated with arteriosclerosis of the central nervous system.

Etiology: *a.* Central. *b.* Peripheral.

a. Apoplexy, locomotor ataxia, neoplasm, paresis, trauma.

b. Syphilis, diphtheria, trauma.

Symptoms: The frequent symptom complained of is the difficulty in taking fluids. Particles of the food and liquid enter the larynx, thence into the trachea, thereby causing violent coughing. I observed our case personally while he was eating his noon meal and was rather surprised to see the patient almost choke to death as food passed into the trachea, following which came a violent coughing attack, with cyanosis and collapse. After considerable difficulty the patient was resuscitated. Should the paralysis be bilateral, the symptoms are more pronounced. The majority of cases are unilateral, in which case the particles as a rule collect on the insensitive side. The unilateral cases usually have a rough, hoarse voice, while in bilateral the voice is not above a whisper.

Diagnosis is made from the symptoms plus laryngeal examination. In bilateral paralysis, of which our case was, shows the glottic chink open, both cords shorter than normal, due to the prolapse of the arytenoid cartilages. The glottis shows a depression on inspiration and an elevation on expiration. The cords are atrophied, wavy and irregular in outline. In unilateral cases only one cord shows the change as paralysis also is noted on that side. On laryngeal examination the mucous membrane may be touched with a probe or forcep and no reflex is obtained; if unilateral, this only occurs on the affected side.

The prognosis depends on the etiological factor. If the condition is bilateral and complete, the danger is aspiration pneumonia or asphyxiation. Cases due to diphtheria revive spontaneously after

*From the Department of Bronchoscopy and Esophagoscopy, Clinic of Dr. S. J. Waterworth, Clearfield, Pa.

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some time. When due to central lesions the prognosis is most unfavorable.

Treatment: Remove the cause if possible. Feeding is the most important problem, which may readily be done by passage of a Kanavel tube into the stomach and bringing of the upper end through the nasal route. With this method food can be given at any time, thereby lessening the danger of aspirating food particles. The fluid balance can also be maintained by intravenous medication, hypodermoclysis or proctoclysis. In syphilis, specific treatment; while in cases following diphtheria the treatment may be faradic and galvanic electric current. Lastly, one should consider the use of tonics, rest and whatever general measures that may be necessary.

Atrophy of the vocal cords with prolapse of the arytenoid cartilages.

Case Report: H. P., a male, age 57 years, was admitted to the medical service of the Clearfield Hospital, complaining of hoarseness, loss of voice, of food going into the windpipe, paralysis of tongue and of constipation. The history was that five months previous he awakened with paralysis of both lower limbs and right arm. The patient stated that for several days he was unable to walk but after four days the paralysis gradually cleared up sufficiently to enable him to be about again. He further stated that the loss of voice and paralysis came on at the same time, but these symptoms still persisted. Since the onset of these symptoms he states that on taking feeds or liquids, some would pass down the trachea, as he had severe

choking attacks. Examination on admission revealed the following: Head: Eyes rather prominent, react to L and A normally; mouth: unable to extend tongue; teeth: in poor condition; neck: no palpable mass or area of tenderness; chest: emphysematous, distinct depression in lower third of sternum, expansion of upper thorax almost absent, abdominal respirations, sounds, harsh posteriorly; heart: somewhat enlarged, both sounds well heard and of good quality, no murmurs; abdomen: flat, flaccid, no palpable masses, scar of appendectomy, inguinal nodes palpable. Extremities: patellar reflex absent on left, present on right, Babinski negative, Romberg negative, left leg flaccid and drags when walking. The temperature was 98.2° F., pulse 80, respiration 20. Laboratory examination: hemoglobin, 80 per cent; red blood cells, 3,680,000; white blood cells, 12,550; polymorphonuclears, 70; lymphocytes, 25; transitionals, 2; eosinophils, 3. Kahn test was negative. Urinalysis: specific gravity, 1.012; reaction acid, sugar negative, albumin trace, microscopic, few white blood cells; occasional hyaline cast. Blood pressure, 105 systolic, 75 diastolic.

Roentgen examination of the chest: Heart and great vessels normal in size and shape. Much uniform, fine, dense peribronchial thickening. Left inferior lobe shows a number of small areas of pneumonitis, which may be due to infection from inspired food.

The patient was referred to the Bronchoscopic Department for examination.

A direct laryngoscopy was done, with the following report: mucous membrane of the posterior pharynx injected, epiglottis flaccid and lying over laryngeal opening. The vessels of the epiglottis are prominent and injected. The arytenoid cartilage on the right and left sides are prolapsed. The mucous membrane of the larynx and ventricular band is injected and edematous. The glottic chink is open, due to both vocal cords being atrophied, wavy and irregular in outline. No approximation of vocal cords was had on phonation. The cord on the left side was more atrophied and blended with the ventricular band posteriorly. An alligator forcep was used to touch the mucous membrane of the larynx and ventricular bands, but no reflex was present. About four hours after endoscopy examination the patient was given liquids; some passed into the trachea, following which he almost choked to death. He became very cyanotic, but a few minutes later coughed and in so doing expelled most of the material. During his stay in the hospital several of these attacks recurred. Patient was sent home on the routine medical treatment.

Comment: After careful and extensive study it is our opinion that cerebral hemorrhage was the etiological factor in this case.

111 East Locust Street.

DYSPHAGIA OF SEPTIC ORIGIN RESEMBLING FOREIGN BODY IN THE ESOPHAGUS.*

DR. WM. B. CHAMBERLIN, Cleveland.

Possibly the title of the following report is incorrect, or at least misleading. I have called it a dysphagia of toxic origin because there was present a localized or focal infection and no other cause could be found. Whether the designation as idiopathic, or even hysterical dysphagia would have been more illuminating, I leave to my auditors to decide.

Bobbie H., age 5½ years, was referred to me on Sept. 18, 1929, by Dr. McKenzie, of Warren, Ohio, with the following history: On awakening four days previously, he manifested some hoarseness and complained of inability to swallow. There was a croupy cough and he complained that he was choking. Following this, there was some daily fever, with a maximum of 102° until 24 hours previous, when the temperature had suddenly risen to 106° following a peritoneal infusion. Although there was no history of a foreign body having been ingested, an X-ray was taken which was entirely negative. A bismuth meal was somewhat unsatisfactory and apparently progressed as far as the sixth cervical vertebra and was then promptly regurgitated. A stomach tube passed without obstruction through the esophagus. Throughout his life, Bobbie had had a capricious appetite and was given to "tantrums" when his wishes were opposed. Such was his history on admission to Lakeside Hospital.

Physical examination showed some redness of the right tympanic membrane, while Dr. Blankenhorn, who was called in consultation, was able to diagnose pneumonia at the hilus of the right lung. The child was most co-operative and made apparently every effort to swallow. On fluoroscopic examination the bismuth meal would be churned about a few minutes in the mouth and then spat out. It was noticed, however, that a thin stream of bismuth passed downward into the stomach. The tube encountered no resistance during gavage.

At the suggestion of Dr. Blankenhorn a laryngoscopy and esophagoscopy were performed the day following his admission. The former showed a normal larynx, while the esophagoscope passed freely into the stomach, disclosing no abnormalities en route. Four days

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later the patient was seen in consultation by Dr. H. J. Gerstenberger. The condition was unchanged except that the right tympanic membrane showed more congestion. Two days later a paracentesis was performed in my absence by my assistant, Dr. I. F. Weidlein. A serous discharge followed, which soon became purulent. Ten days later the right mastoid was exenterated. There had been pain, fever and tenderness, together with a prolapse of the canal wall. The mastoid process was large and pneumatic, containing pus and granulation tissue. The sinus and dura were not exposed. Meanwhile the lung had entirely cleared but the inability to swallow had continued as on admission.

At first Bobbie had made strenuous resistance to the introduction of the tube, but this soon ceased and he would introduce the tube himself through the right nostril. Ten days after the mastoid operation he was discharged from the hospital. The ear was dry, but there was still some discharge from the mastoid wound. Food and water were still taken by tube only, which Bobbie still introduced himself. Meanwhile he was left alone in a room surrounded with tempting foods of various kinds to see if he would attempt to swallow, but no such attempts were made, although the child was quite alone and did not know that he was being observed.

Six weeks after the onset of the dysphagia the mother noticed that he was apparently swallowing saliva, and possibly some fluids. At this time another fluoroscopic examination was made. According to the report of Dr. Blankenhorn, "he was at first complacent about being examined and hopped onto the table, but soon began to cry and begged to be taken off, saying that he could not swallow. When given a mouthful of moderately thick barium this was seen to pass through the esophagus and down into the stomach in a normal way. He insisted, however, that he could not swallow. At the end of the examination he was quite cheerful and volunteered the information that he did not swallow anything. It was apparent, however, that he swallowed quite naturally and then spat up afterwards." Ten days later he said that he swallowed everything, although his mother had been forced to rely on partial feedings by tube, following the fluoroscopic examination, in order to keep him properly nourished. The mastoid wound had been healed for some time.

The foregoing case presents some unusual features in diagnosis. A careful search of the literature has failed to discover a similar history. The cases of so-called hysterical dysphagia reported by Plummer, Vinson and others were all in adults and, while there was an inability swallow solid foods, soft foods and liquids were still

swallowed freely. The dysphagia in these reported cases always followed choking attacks and difficulty in swallowing solid foods—usually meat. In addition it was associated with enlargement of the spleen and a secondary anemia, probably due, as Vinson says, to the quality of the foods taken. There was often associated an hypothyroidism, attributed by Plummer to a disuse atrophy. The difficulty was attributed to a spasm of the pharyngoesophagus muscle and was always cured by the passage of a sound—no matter what size—in other words, by suggestion.

Inasmuch as a sore throat had been complained of, the possibility of a diphtheritic paralysis was considered. The throat on admission showed no signs of disease and smears were negative, as was also the Schick test. Another possibility could also have been an anterior poliomyelitis, although there were no other signs and the spinal puncture was negative.

The remaining possibilities were a spasm of the esophagus or a paralysis. Against the former is the fact that both the tube and the esophagoscope passed freely into the stomach, no resistance being encountered. A paralysis is, accordingly, the only apparent diagnosis remaining. That this was functional is evidenced by the history of the case. What was the predisposing cause of this functional disorder it is difficult to say. The only apparent cause was the infection in the middle ear and mastoid process. Still these, as well as the pulmonary involvement, might have been secondary to the dysphagia and the forced feeding. So, as stated at the beginning of my paper, whether we shall call this a case of dysphagia of septic origin or a case of hysterical dysphagia I leave to my auditors to determine.

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Osborn Building.

A PLEA FOR ROUTINE SUCTION CLEANSURE OF ALL TONSILS PRIOR TO TONSILLECTOMY.

Dr. J. B. H. Waring, Cincinnati.

By way of introduction, let us say that this it not a plea for any particular tonsillectomy technique. The individual operator should, and undoubtedly will, select whatever enucleating technique seems most suitable in his hands. This goes for dissection; for Sluder; for suction tonsillectomy; for removal of the tonsils by electrosurgery. So much for that.

Now let us turn to an article in the June, 1930, Laryngoscope, page 444, by Dr. Jacobs and Dr. Trauner, of the Sutter Hospital, San Francisco.

On page 447, the Doctors state, in part:

. . . "Another outstanding advantage . . . is the instantaneous removal of infectious material from the operative field. The very moment that suction is applied, all pus or other infectious material is immediately sucked up into the (tonsil) tube and cannot possibly get into the pharynx or larynx.

"This is not the case in the dissection method (as ordinarily employed nor in the Sluder technique), even where suction is used for clearing the field while the dissection is carried out. The moment that the tonsil is grasped by the tenaculum, pus is squeezed out and is either swallowed or inspired.

"This is impossible with the suction method (of tonsillectomy).

"Consequently lung abscess or postoperative pneumonia is unheard of." . . .

In those words, Dr. Jacobs and Dr. Trauner make observations that every physician doing tonsil work may very, very earnestly study.

The situation seems so very obvious that it is difficult to understand why any up-to-date, progressive operator should or could hesitate for a minute to adopt routine suction cleansure of the tonsils prior to tonsillectomy by any method. It is a situation that we have been preaching about year in and year out for almost a decade; yet go over the country and see how many tonsil operators are suction-cleansing tonsils prior to enucleation.

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Lung abscess is a pretty disheartening proposition at any time; disheartening for the patient, for the patient's family and for the operator; lung abscess or a postoperative pneumonia after such a "simple" operation as removal of the tonsils seems particularly disheartening. Some doctors will argue that when we consider the thousands of tonsillectomies performed the country over, day in and day out, postoperative lung abscess after tonsillectomy must be a very rare and, therefore, a more or less inconsequential consideration. It is very true that we do not hear of so many lung abscesses reported in the literature from year to year; but this situation is misleading. It is far commoner than the average doctor imagines. We all are human, more or less, and prone to rush into print with our successes in medicine or surgery; but perhaps not so anxious to tell our fellow physicians about our failures, about our mishaps and surgical complications. The result is that comparatively few postoperative lung abscess cases after tonsillectomy ever find their way into the literature; consequently such statistics as are available on the situation have but a limited value.

Considerable study has been made, however, and the consensus of professional opinion on postoperative lung abscess after tonsillectomy, is that it is aspiratory in origin in the great majority of cases. The fact that most lung abscess cases reported after tonsillectomy occur where a general anesthetic is employed lends much support to this belief. As a general proposition, it may be safe to assert that, taking the country as a whole, far more tonsillectomies, even in adults, are performed under general anesthesia than under local. A great many dissection operators, as well as Sluder men, employ general anesthesia almost as a routine on all cases, children as well as adults. A great many tonsil cases are difficult to operate under local by Sluder or by dissection, whereas they can be handled to better advantage under general, where the operator can take his time and not bother perhaps about trying to keep a nervous or frightened patient under control while working his way through a difficult or tedious tonsillectomy. The more cases operated under general anesthesia then, the greater possibility for development of later lung abscess, etc., as a postoperative complication. Not that this is a plea for local anesthesia tonsillectomy as a routine; this is difficult with children under 14 or 15 years as an average, and difficult with nervous or uncontrollable patients of any age.

The danger of lung abscess from aspiration of infectious material squeezed from the tonsils during tonsillectomy has been repeatedly pointed out, but to date nothing very practical has been brought

forward for routine prophylactic usage by the dissection and by the Sluder operator.

Suction cleansure of the tonsil is an integral part of suction tonsillectomy technique and, as Dr. Jacobs and Dr. Trauner have so well pointed out, the minute the tonsil suction tube is applied, tonsil crypt exudate and pus, all potentially infective material and often in astonishing amount, is aspirated from the tonsil and carried out of the pharynx into the suction reservoir bottle. In consequence, so far as we have been able to ascertain, no cases of lung abscess after suction tonsillectomy have been reported anywhere. This, of course, does not mean that such a complication has never occurred or will never occur after a suction tonsillectomy; but it does indicate that this preliminary suction cleansure of the tonsils is strongly prophylactic.

Some four or five years ago, William F. Moore, of the Chevalier Jackson Clinic in Philadelphia, evolved a somewhat triangular dish-shaped instrument, which he called a tonsillectomy sump. The idea was that this instrument was to be placed in the throat pan-like below the tonsil to catch and aspirate into a suction bottle any pus or crypt exudate squeezed from the tonsil in the course of instrumental manipulation incident to dissection. Aside from introduction of one more instrument into an operative field, none too large to begin with in many instances, the difficulty of holding such a device properly in position through tonsillectomy procedure is easily apparent. Later a Cleveland Sluder operator developed a sort of abbreviated rubber finger cot to slip over his Sluder instrument as a catch-all for crypt exudate and pus squeezed from the tonsil during operation. Neither of these ingenious devices seems to have been largely adopted; but they do show that their inventors were alive to the danger of aspiration of this infective material during tonsillectomy.

In a very illuminating article, "Tracheobronchial Tree in Children," Harris H. Vail, of Cincinnati, gives results of bronchoscopic examinations in a series of 100 children subjected to tonsil-adenoid operation under general anesthesia.

In the 100 patients subjected to post-tonsillectomy bronchoscopy, 62 showed blood in the larynx and trachea in varying amounts.

In the majority of cases in which a bloodless operation was performed, blood was not found in the trachea or bronchi.

During this Cincinnati study by Dr. Vail and his associates, Dr. Iglauer, Dr. Edward King, Dr. Henry Goodyear, Dr. Samuel Seltz and Dr. Paul Smith, "every effort was made to control bleeding from the tonsillar fossa before bronchoscopy was performed. Some of the

patients came to bronchoscopy with sponges in the tonsillar fossae or nasopharynx. This may explain the lower percentages in this series as compared with Myerson's first series, for Myerson stated that sponges were not applied in the tonsillar fossae except when there was frank bleeding."

In Myerson's first series of 100 cases, 79 patients had aspirated blood into the tracheobronchial tree. In a second series, he found that 76 patients had aspirated blood. Louis and Ray K. Daily in another 100 cases found that 78 patients aspirated blood.

These operations were all performed by skilled operators, and presumably under excellent operative conditions; yet practically three out of every four such patients aspirated blood into the upper air passages and bronchi. Now, if this aspirated blood contains gross amounts of crypt exudate and tonsillar pus, it is not difficult to see where in some cases protective mechanism of the air passages is inadequate, and cases of lung abscess or pneumonia may develop, which doubtless would not develop if this crypt exudate and gross pus had been kept out of the larynx and trachea.

Prophylaxis is so simple, easy and rapid; and this without the slightest interference with subsequent enucleation technique, that it is difficult to understand why any operator conscientious as to the welfare and best interests of his patients should hesitate for a moment to routinely give them the benefit of suction cleansure of the tonsils prior to actual enucleation. To do so, certainly with all general anesthesia patients, would go far towards elimination of these two grave possible post-tonsillectomy complications. Perhaps the need of this prophylaxis is not so pressing in local anesthesia tonsil patients, but even here the procedure is so simple, easy and rapid that it should be universally adopted as a routine preoperative step in technique.

Adenoids, of course, are not entirely guiltless as an etiological factor here; in recognition of this possibility, we routinely place a Yankauer aspirating tip or an aspirating tongue depressor against the postpharyngeal wall below the operative area, and employ continuous suction during and immediately after adenoidectomy, to the end that blood flowing from the operative field is evacuated into the reservoir bottle as it flows, and thus prevented from possible aspiration into the larynx and trachea. It might be still more effective if some type of adenoid suction-cleansing apparatus was available for preoperative usage; but aside from mechanical difficulties incident to development of same, such refinement in adenoidectomy technique might be impracticable; or at least without sufficient value to appeal

to many operators. Suction cleansure of the pharynx as above described is very simple and easy, and could with profit be also made a matter of routine employment with every adenoidectomy under general anesthesia.

In conclusion, let us again emphasize that tonsillar suction cleansure prior to enucleation is very simple, rapid and easy; unquestionably of very great value as a prophylactic measure against postoperative complications dependent upon aspiration of infective material into the larynx and trachea; does not in anywise interfere with subsequent Sluder or dissection technique; and should be adopted as a routine preoperative procedure incident to tonsillectomy by any method.

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7 East McMillan Street.

DERMATOSES ON MUCOUS MEMBRANES — THEIR DIFFERENTIAL DIAGNOSIS, WITH A CASE REPORT OF PRIMARY PEMPHIGUS OF THE THROAT.

DR. BENJAMIN KATZ, Los Angeles.

The so-called dermatoses in the mouth are an example of the borderlines between laryngology and dermatology. Due to different anatomical conditions, the cutaneous eruptions are somewhat modified when present on the mucous membranes. When these eruptions are primarily affecting the throat and the patient is referred to a laryngologist, the latter is confronted with the necessity of making a correct diagnosis.

To accomplish this task in the large group of acute and chronic eruptions and ulcerations on the mucous membranes of the mouth, some kind of classification must be worked out, which will guide the physician in his diagnosis, in the same way as reactions in analytical chemistry. This author believes that the only possible means of classification of eruptions on the mucous membranes is to group them in accordance with the pathological nature of the disease.

The first group, *Stomatitis Ulcerosa,* should include those affections which pathologically are characterized by formation of ulcerations, but without any kind of exudation in the form of vesicles.

This group will comprise stomatitis scorbutica, stomatitis mercurialis, stomacace (canker). Stomatitis scorbutica is a systemic disease with pain in the back, joints and limbs, accompanied by ulceration of the mucous membranes chiefly on the gums, which are extremely swollen. In stomatitis mercurialis, there is a definite etiology which makes the diagnosis clear; the mucous membranes are swollen and inflamed, the ulceration mostly affecting the gums. In stomacace, ulceration on the mucous membranes can be present, but the gums are primarily affected, having the characteristic yellow discoloration on the margin of the gums and a very nasty odor.

Ulcerations due to syphilis and tuberculosis are easily diagnosed by the history of the case, laboratory and clinical findings. Ulcerations due to Vincent's angina are diagnosed by the presence of Vincent's spirilla.

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Closely related to this group are the different eruptions and ulcerations in the mouth due to some medicaments, such as bismuth, antipyrin, migrenin, quinin, salycilic acid and iodin. Having a clear etiology, these eruptions do not present any great difficulty in the differential diagnosis.

The other group, *Stomatitis Exudativa,* is characterized by exudate formation in the form of vesicles. In this group should be included herpes, urticaria, smallpox, stomatitis aphthosa and pemphigus. Herpes occurs during acute infections as rhinitis, pneumonia, influenza, rheumatism and angina (herpes labialis). In these affections, eruptions may be present on the mucous membranes of the mouth, being usually accompanied by a rise of temperature, soreness in the mouth and eruptions of herpes on the lips or the orifice of the nasal cavities. The chronic type of herpes in the mouth is not a permanent infection, but merely a repeated attack of eruption, with chills and soreness in the mouth. Urticaria on the mucous membranes of the mouth has an acute onset after digestive disturbance in some persons due to food, such as eggs, fish, crabs and other highly seasoned dishes. This eruption is characterized by formation of edema, wandering and migration of the lesions and quick recovery after the causative factor is removed.

Smallpox eruptions in the mouth belong to the same pathological group, but the clinical symptom-complex is very definite and can be easily diagnosed from the history and presence of eruptions on the skin. Stomatitis aphthosa is a disease of children, with a fever and general malaise, with the formation of white or yellowish-white spots on the mucous membranes of the mouth, due to fibrinous exudation on these parts, but without real ulceration. The last member in the exudative group is pemphigus of the mouth. This disease may have an acute stage with fever and the formation of red spots on the mucous membranes, upon which later, vesicles with a clear liquid develop. After the vesicles break, ulceration is present on the affected areas. Recovery results in about three weeks. Although this acute stage has been described by some authors, the disease is very rarely recognized in this period. The chronic type of the disease results from the same kind of vesicles on the mucous membranes, but the disease comes under the physician's observation mostly after the vesicles have broken and have formed small ulcerations, which are very persistent in character and which usually become covered with thin deposits of fibrin. In the derivation of these ulcerations from vesicles, which occasionally can be found on the mucous membranes after repeated examinations, is the key to the correct diagnosis

of a primary pemphigus. There lies the difference between pemphigus and the other very persistent disease of the mouth, namely leukoplakia oris. Being considered by some authors as a parasyphilitic infection due to irritation by smoking, leukoplakia is characterized by the formation of white spots on the mucous membranes, but the pathology is entirely different in this disease. There is no exudation nor any formation of vesicles present. The ulcerations are not as predominate in this disease as in chronic pemphigus, but enlargement and thickening of epithelium are the main features, being the results of hyperplastic proliferation. After a long existence of the disease, the superficial layer of the epithelium may undergo a process of keratitic degeneration. Aside from the rest of the affections of the mucous membranes, there is the so-called Lichen ruber planus with a pathology of its own. In this disease there is a net of white strips on the mucous membranes of the mouth, in the meshes of which are lodged silver white granules. Arsenic internally and local treatments with a solution of mercuric sublimate are very effective, while in pemphigus and in leukoplakia they have absolutely no influence. Vesicles are never present. Mycosis fungoides usually affects the posterior wall of the throat and is present in the form of more or less extensive whitish deposits, which are spread over an *intact* mucosa. Microscopical examination of a bit of excised tissue will reveal the presence of the pathogenic fungus.

The following case history of a primary pemphigus illustrates the subject of this paper: Mr. S., contractor, age 52 years, came to my office in 1924 complaining of a sore throat, which persisted for the last year. The beginning of the disease was of slow onset, without fever. Examination disclosed that the soft and hard palate, the gums and the mucous membrane of the cheeks were covered with small ulcerations. There was no odor from the mouth, nor any inflammation or infiltration of the mucous membranes between them. During repeated examinations, small vesicles could be noticed, which by later examinations appeared, after bursting, in the form of ulcerations. Several Wassermanns were negative. The general condition of the patient was good. From the history of the case and clinical findings, a diagnosis of pemphigus of the mouth was made and a consultation with a skin specialist arranged. The dermatologist could not find any evidence of a rash on the skin at that time. All local treatments and internal medication (arsenic) were without results. The patient disappeared for six months, when he returned again and told me that he went to the Mayo Clinic. A letter received by me from the Mayo Clinic, dated Feb. 15, 1926, stated that at the time

of the patient's admission in June, 1924, he did not show any cutaneous signs of the disease, but after he had been in the institution for a week or so, he developed definite blebs about the trunk. A diagnosis of chronic pemphigus was made at the Mayo Clinic.

In the reported case, a diagnosis of a primary pemphigus of the mouth was made by the author two years before eruptions appeared on the skin, merely by analytical consideration of the pathological nature of the disease. Presence of chronic ulcerations in the mouth, with occasional formation of exudation in the form of vesicles, revealed the nature of pemphigus, excluding the rest of the affections.

SUMMARY.

To arrive at a correct diagnosis in a case of eruption or ulceration in the mouth, all acute eruptions accompanied by fever should be excluded first by the history of the patient and clinical findings of the primary disease. Eruptions and ulcerations due to constitutional diseases, as syphilis and tuberculosis are easily excluded by clinical and laboratory examinations. The chronic eruptions and ulcerations should be differentiated and analyzed according to their pathological nature in the manner outlined in the original classification presented by this author.

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NEURALGIAS OF THE HEAD.*

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In this brief paper my discussion will be limited to head neuralgias, those sharp, intermittent pains for which nose and throat specialists, dentists and neurologists are often consulted. Some of these conditions are easily diagnosed, others not.

One of the commonest of all facial pains is that due to *chronic paroxysmal trigeminal neuralgia (tic douloureux)*. This involves the second and third divisions of the trigeminal nerve with about equal incidence, together or separately, on one side of the face. I have seen a few with bilateral facial involvement. Involvement of one branch may precede the other by years. Quite rarely the first division is involved alone. The pain is a sudden, violent, sharp, sometimes burning "explosion" in the upper or lower jaw or in the lips, side of tongue or nose, having a horizontal radiation into the cheek or temple, sometimes into the eyebrow or lower half of the forehead. The patient's jaw hangs open. He may salivate or lacrimate. His facial expression bespeaks utter agony as he presses his hand to his jaw. The reaction of the patient varies with his temperament. The pain is easily aroused by stimulation of skin and mucous membranes so that eating, washing the face, laughing, talking, blowing the nose are scrupulously avoided. Remissions of months to years occur, but as the attacks continue, the interval period lessens. In some there is little or no spontaneous relief. In still others, the sharp pain may be absent, but a peculiar tingling, "electrical" feeling persists about the lips or nose. At times this may precede the return of severer paroxysms.

The average age of onset of tic douloureux is about 50 years (though the extremes are between 10 and 87 years). The proportion of women to men is three as to two, as is also right-sidedness three, to left-sidedness two. It is believed that a septic neuritis of dental or other nerve filaments constitutes the underlying pathology. Hence the second and third nerve territories are mainly involved. In uninjected or unoperated cases, there are never any sensory defects or trophic changes in the trigeminal skin area. The disease is

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obviously not due to central lesions because peripheral neurolysis relieves the pain.

Violent emotion, coldness or chill upon the face and a blow on the jaw or face are noted among the exciting causes. Before committing oneself to a diagnosis of tic douloureux, one must search carefully for evidences of dental caries, using the X-ray and other dental means. Among the cardinal features of this disease, one should note the exceedingly brief duration of the sharp pain, seconds to a minute or two at the most—the presence of "trigger areas", stimulation of which provoke the pain, the evocation of the pain by rubbing the skin of the face, eating, talking and laughing, and the absence of sensory changes. At times, the pain may be restricted to a very small area. This happened in the case of a lady of 60 years, who had violent, very transient pain directly in front of the left ear, provoked by touching the skin in that area. The pain had practically no radiation. The nerve involved was a branch of the auriculotemporal nerve, itself a branch of the third division of the fifth. Novocain-alcohol injection of the nerve relieved the pain.

The treatment of trigeminal tic douloureux is well known. The therapy of choice is retro-Gasserian section of the sensory root of the nerve. When undertaken by a competent neurosurgeon, the operation has little hazard and assures the patient of permanent cure. Alcohol injection of the branches of the nerve may be temporarily helpful, but must be repeated and becomes less efficacious as time goes on. Of the antineuralgic medicines, the inhalation of 20 to 30 drops of trichlorethylen on a bit of cotton sometimes is worth trying. Very occasionally it effects striking relief. Other remedies may blunt the pain a little but, in general, are of no real value.

In the following paragraphs reference will frequently be made to novocain-alcohol injections. The affected nerve is first infiltrated with three to eight drops of a 2 per cent novocain solution; the medium-sized needle is left *in situ* while a minute is allowed to elapse. The barrel of the syringe (10 c.c.) is then filled with 90 per cent alcohol and 3 to 8 c.c. of this solution is injected. In soft tissue, as the floor of the mouth and about the orbit, the lesser quantities of alcohol should be used, because of the sequential edematous reaction, with swelling. Of course, one must take care not to get into a bloodvessel.

Occasionally one meets with a *chronic neuralgia of the jaws*, usually consisting of continuous aching in the upper or lower jaws and having no tic-like exacerbation. The condition is uncommon and should be treated as a tic douloureux. Some are benefited, others

not. I have seen one case in which the pain seemed of psychic origin in a woman past the menopause.

When pain is felt in the trigeminal area, in periods of longer duration, associated with sensory defect (with or without loss or diminution of the corneal reflex)—then we are faced with a variety of *organic lesions involving the fifth nerve.* Tumors involving the Gasserian ganglion of an endotheliomatous or sarcomatous nature may be the underlying cause. It is interesting to note that these growths may erode the base of the skull and present themselves in the nasopharynx. Here they may be palpable and visible. Tumors of the posterior fossa, such as acoustic neurinomas and, rarely, growths arising in the pterygoid fossa, sometimes encroach upon the ganglion or roots of the fifth nerve and induce trigeminal pain. Multiple sclerosis and syringobulbia are occasionally responsible. Thrombosis of the posterior inferior cerebellar artery which produces a typical clinical picture is sometimes followed by pain in the homolateral face. Rarely pain in the trigeminal area follows fracture of the base of the skull. E. D. Friedman told me of two instances of such pain occurring in the course of osteomyelitis of the tip of the petrous pyramid, an extension of acute mastoiditis in children. The acute inflammation undoubtedly involved the sheath of the Gasserian ganglion. Among chronic inflammatory processes, luetic basilar meningitis sometimes involves the sheath of the ganglion and produces trigeminal pain. This process is more apt to injure the motor root first. In all these cases sensory and sometimes motor defects in the trigeminal innervation are demonstrable.

As you know, herpes zoster affects this nerve, especially the first branch. I need not dwell upon the severe pain associated with the appearance of these discrete, sometimes confluent, vesicles nor upon the eye complications in this place. The very severe initial pain may require morphin.

What interests us more is the *chronic postherpetic neuralgia* which is a residuum of the acute herpes, and is especially prone to occur in those over 55 years. Sharp, shooting, more or less continuous pains, gradually develop after the acute stage is over. The skin of the affected forehead may be normal or oversensitive, yet defective sensation is usually found in the depressed scars. The treatment of this condition is surgical—cutting the posterior root behind the Gasserian ganglion.

Among the *dental neuralgias,* many are quickly and easily related to diseased teeth. Now and then the pain from an impacted, unerupted molar, usually the last one in the lower jaw, radiates into

the homolateral ear as well as along the lower jaw. Its disclosure by X-ray in a young individual who has not erupted all his molars solves the diagnostic problem. The removal of one of these impacted molars is a matter of dental surgery.

Paroxysmal supraorbital neuralgia (not due to frontal sinusitis) may follow influenza and not infrequently complicates malaria. I have seen a number follow an injury of the supraorbital ridge, the nerve being implicated in scar tissue.

There is a *migrainous type of supraorbital pain,* either of essential nature or substitutive for the usual type of migraine, which may alternate from one side to the other, be accompanied by nausea and vomiting and come on in recurrent attacks, with long intervals of freedom. This pain not infrequently starts very early in the morning, often at a strikingly regular hour, becoming agonizingly severe. It is located in the back of the orbit or in the eyeball, or in the frontal region, or in the upper cheek. The pain may last one hour or less, or by afternoon it may have spent itself; as the daily attacks go on, the pain is apt to become less severe and shorter in duration. Occasionally, there are a number of attacks during the day. This rather unusual picture may make its first appearance in women at the menopause, coming on at monthly intervals, and spreading from one side to the other.

I have recently had a man, age 49 years, under my observation, who showed this syndrome. When first seen, four years ago, he complained of agonizing sharp pain located in the right frontal region, which came on about eight o'clock in the morning. The duration of the severe paroxysm was less than an hour, during which time the agony was so great that he said he felt like shooting himself or, if I were around, shooting me. The eructation of considerable gas brought relief. Treatment of an existing mucous colitis seemed to cause the pain's disappearance; about two months ago it returned with all its previous severity. The symptomatic treatment of this episodic condition is along two lines: *1.* Either the injection of morphin gr. ¼ and hyoscin gr. 1/150, about an hour before the anticipated onset of the pain on the four or five mornings at the beginning of the bout; or should this procedure be ineffective, *2.* a novacain-alcohol injection of the supraorbital nerve is indicated (W. Harris*).

In these migrainous neuralgias there are no trigger zones demonstrable, nor does eating, talking, etc., call forth the pain. While

*In his admirable treatise, "Neuritis and Neuralgia", Harris summarizes the results of his rich experience in the neuralgias described in this paper. I am much indebted to this work.

slight nausea and even vomiting accompany some of these cases, there is no aura, as in typical migraine. Although many antineuralgic remedies may be used for the acute episode, Harris[1] believes that the interparoxysmal administration of luminal is very helpful in preventing the seizures. In migrainous neuralgia trichlorethylen inhalations (20 to 30 drops on cotton) have helped some cases. Occasionally, the novocain-alcohol injection of an exceedingly tender area in the temporal region from which the pain seems to radiate is curative. Others have been benefited by novocain-alcohol injection of the supra- or infraorbital nerves. While it may be argued that this migrainous neuralgia is really of sphenopalatine ganglion origin, the fact that the pain is often found in those with a family history of migraine, its alternation from right to left side, the occasional accompaniments of nausea and vomiting, or what is typically a migrainous sign, voracious appetite, points to the migrainous nature of this neuralgia.

Occipital neuralgia is due to a rheumatic perineuritis following exposure to wet or cold. These paroxysms of sharp pain start in the back of the head, lateral to the external occipital protuberance, radiating behind the ear up to the vertex. Here, too, a novocain-alcohol injection should effect quick relief. In this instance the nerve is caught about one-half inch lateral to and below the external occipital protuberance, at which point it is very apt to be quite tender in these cases. The needle should be inserted in a perpendicular manner right down to bone. A few drops of a 2 per cent novocain should be injected first, an interval of one or two minutes allowed to elapse and then, without removing the needle, about 5 to 6 c.c. of 90 per cent alcohol injected.

In this connection it is well to consider the type of rheumatic headache due to nodules of fibromyositis. These are found in the trapezii and supraspinati muscles. The palpable, tender nodes may be made to disappear by the use of heat and massage and salicylate therapy. Occasionally they may be injected with novocain-alcohol with striking relief. Since the occipital nerve is a continuation of the posterior branch of the second cervical root, one must be wary of disease in the atlas-axis region, such as osteoarthritis, caries, bone malignancy, etc. One must also keep in mind the possibility of high spinal cord neoplasm.

Under the term *ciliary or "eyeball neuralgia"*, Harris describes "cases of migrainous neuralgia in which the pain is referred locally to the eyeball alone or to the back of the eyeball". He states further that he is convinced "that these cases are a form of substituted

migrainous neuralgia, and are therefore to be looked on as a spasmodic vasomotor neurosis, rather than due to local disease of any ganglion or nervous structure". The pain is severe and at times associated with nausea and vomiting, the latter often affording relief. Harris has relieved a number of cases by novocain-alcohol injection of the infraorbital nerve. He notes the resemblance of these cases to Sluder's sphenopalatine neuralgia and their close relationship to migraine.

In all cases of pain centering about the eyeball one must keep glaucoma in mind. Within a period of two years, two instances of that disease have been referred to me for treatment of the "neuralgia".

Geniculate (ganglion) neuralgia frequently precedes the onset of facial paralysis with a sharp pain felt behind the auricle. The pain of geniculate neuralgia may be felt in front, above or in back of the external ear and along the back of the lower jaw. It may precede or accompany acute herpes of this ganglion. As in other neuralgias at onset, the pain may spread over into trigeminal and cervical areas and is often worse at night. The herpetic vesicles appear at the junction of ear and scalp, on the concha, posterior and upper wall of the external auditory meatus and on the tympanum, sometimes on the border ot the tongue and on the soft palate. Loss of taste on the anterior two-thirds of the tongue, facial paralysis, and even trigeminal herpes, may be accompaniments.

Though this neuralgia is usually a part of geniculate herpes, it may be a primary neuralgia resembling trigeminal tic douloureux, or a postherpetic sequel. It has been experienced as a complication of fractured skull and middle ear disease.

Painful tic convulsif refers to clonic facial spasms associated with pains in the face on the same side. While this pain may be of trigeminal origin, it more often is not. Cushing[2] has relieved some of these patients by making a spinal-accessory-facial anastomosis. The relief following this procedure makes it seem probable that the pain is caused by a reflex action through a sensory arc, trigeminal in some instances, not clearly defined in others. J. Ramsey Hunt[3] believes that the clonic facial spasms are due to abnormal stimuli arising in a diseased geniculate ganglion in some cases. It is not unlikely that the sphenopalatine ganglion plays a part in the reflex arc in others.

Glossopharyngeal Neuralgia: A typical instance of this disease came under my observation some years ago. In 1919, I saw a man, age 61 years, who had had an abscess in the left pyriform fossa of his larynx three years before (1916). This was a complication of a

severe influenza. The focus was drained externally and he made an uneventful recovery. In 1919, he began to experience very sharp, agonizing, transient pains in the right side of his tongue, radiating to the region of the right tonsillar fossa and ear. Although talking and rubbing the face evoked no pain, swallowing and protrusion of the tongue caused severe paroxysms. He next consulted Dr. John McCoy, who recognized the tic-like nature of the malady and injected alcohol externally into the deep tissues of the floor of the mouth and "caught" the offending nerve. About nine months later, slighter ominous tingles announced the return of the pain, and a few weeks later outspoken attacks occurred. I injected novocain-alcohol into a trigger zone at the side of the base of the tongue on the right and succeeded in blocking the nerve. Following all of the injections he developed an edematous, painful swelling of the tissues of the floor of the mouth, somewhat resembling Ludwig's angina. Fortunately, this condition disappeared in a few days. On reappearance of the affection one year later, I again repeated the same procedure with success, but after encountering a good deal more difficulty in hitting the nerve. At no time was there disclosed any evidence of malignancy in the mouth or pharynx. A few years later the man died. I do not know the cause of death.

In the suddenness of onset, brevity of duration, type of pain and prolonged course, glossopharyngeal tic douloureux resembles the much commoner trigeminal variety. The area of subjective pain, however, has a different topography. It starts at the base of, or on the side of the tongue, or even further back, and radiates to the neighborhood of the ear. At times different parts of the auricle are very tender to the touch. Swallowing, yawning and protrusion of the tongue evoke the pain. Harris notes that "repeated coughing or clearing the throat during the pain is a suggestive symptom". Trigger zones are much harder to find in this variety of neuralgia.

Besides the treatment by alcohol injection, which does not afford permanent relief, intracranial avulsion of the glossopharyngeal nerve has been done in a number of cases with success (Adson[4], Stookey[5] and others). Before one makes a diagnosis of essential glossopharyngeal tic douloureux, careful examination must be made to exclude malignant growths in the tonsillar and pharyngeal region.

Superior laryngeal neuralgia is not seldom seen complicating tuberculous ulceration of the larynx and epiglottis. This pain begins at the side of the thyroid cartilage and radiates to the ear. Since the friction of food evokes the pain, these patients eat little—a bad state of affairs in a tuberculous individual. Alcohol injection of the nerve

at the point where its internal branch pierces the thyrohyoid membrane is indicated—a procedure which arrests the pain.

In *Sluder's sphenopalatine ganglion neuralgia*[6] pain is felt in and about the eye, root of the nose in the upper jaw and teeth, under the zygoma and toward the ear. It may radiate to the mastoid and occipital regions, neck and shoulder, and may be bilateral. The pain is usually more or less continuous, though sometimes subject to acuter exacerbations. There are no trigger zones. Sinus disease, *viz.*, ethmoiditis, or disease of the nasal mucous membrane, is commonly associated with it . These points, together with its wide radiation, should easily distinguish it from trigeminal neuralgia. The status of this syndrome is not settled. Some cases conforming to the above description are cured by treatment of the sphenopalatine ganglion, *i. e.*, cocainization or alcohol injection, or even extirpation; others are unrelieved. Cushing[2] mentions an instance in which Sluder himself made the diagnosis and extirpated the ganglion. No relief followed. Nevertheless, there are cases in which treatment of this ganglion relieves the pain, and in which one can definitely associate the pain with disease of this structure.

Atypical neuralgias are not uncommon. M. A. Glaser[7] has analyzed 143 cases which have come under the observation of the Neurological Division of the University of Pennsylvania Hospital. Under the aegis of Dr. C. H. Frazier, this Philadelphia clinic has had an enormous experience in facial neuralgias. Indeed, they have a record of over 1200 cases of major trigeminal neuralgia.

This atypical facial neuralgia occurs oftenest in middle life, affects females three times as often as males and is bilateral in about one-third of the cases. Glaser states that the "constancy of distribution of the pain throughout the course of the disease" is noteworthy. While the pain may be limited in extent, it affects or radiates to the following regions: lower jaw, upper jaw, malar region, nose; under, in or above the eye; in front of, in or back of the ear; forehead, temporal, parietal, occipital regions; neck, shoulder; arm. If the pain is mainly localized to one of these regions of the head, it may spread to parts in anatomical juxtaposition to the main focus. Unlike the pain of tic douloureux, which is described as superficial, this pain is deep-seated, *viz.*, in bone or eyeball, and often described as throbbing, gripping, pulling or bursting. It is more or less continuous, having severe exacerbations, lasting many hours. Some have months of freedom. The provocative causes are changes of temperature and climate, the onset of the menses and fatigue. Local factors also seem to evoke the pain, such as eating, talking, blowing

the nose, brushing the teeth, washing the face, etc. Sympathetic phenomena sometimes appear with the pain; for instance, where the orbit is concerned, the eyelids may appear red and lacrimation may ensue. Where the nasal region is affected, rhinorrhea may occur. With pain in the malar region, flushing and edema of the skin of that part of the face has been observed.

These cases have proven entirely recalcitrant to treatment. Teeth have been extracted; sinuses have been drained; tonsils and turbinates have been removed, and the sphenopalatine ganglion often injected—but to no avail. In 10 of these cases Frazier and his colleagues[8] excised the superior cervical sympathetic ganglion and stripped the periarterial sympathetic plexus from the carotid artery, with no success. Indeed, this work tends to exclude the sympathetic system as a possible cause of head pain. Peet[9] regards some of these atypical neuralgias of central origin, "the lesion being probably located in the trigeminal tract in the medulla or pons". He suggests that other atypical neuralgias may be of sympathetic origin by way of vasomotor spasm. These atypical cases of neuralgia still constitute an unsolved problem. They form a group of wretched people prone to the addiction of habit-forming drugs and the addition of neurotic symptoms. To relegate them to the group of psychoneurotics in no way helps matters.

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Kaufmann, in the Gyogyaszat, 1930-599, reports on a case of complication following tonsillectomy in which symptoms occurred clinically, as well as Roentgenologically, of a paranephritic abscess. An aspiration puncture was made in the fourth intercostal space on the left side, and a thick pus was obtained, from which a pure culture of streptococcus was recovered. This condition cleared up under treatment in two months; no explanations are given of the verification of the diagnosis. KELEMEN.

Sophian, of Kansas City, in the *Journal Missouri State Medical Association,* August, 1930, reports that a nasal spray of surgical pituitary extract produces a physiologic bowel movement. About 0.5 c.c. as often as three times a day is effective in producing a bowel movement in from one to seven hours after the use of the spray. Large doses produce cramps, but experience with the intranasal spray is that after a few days the dosage must be lowered, which is particularly encouraging in cases where dietetic management may be established.

In a comprehensive article on the Asthmatic Child, appearing in the Archives of Disease in Childhood (Eng.) for August, 1930, Bray reports the preponderance of asthma in males in the ratio of three to one. He also states that a positive family history of allergy is present in about 70 per cent of cases of asthma in children and that transmission appears to be twice as frequent through the female as through the male, the diathesis being transmitted as a mendelian dominant. The author expresses the opinion that no permanent cure of asthma may be expected as the result of the removal of tonsils and adenoids *per se* and, conversely, that neither may a cure of asthma be expected in the presence of enlarged or septic tonsils and adenoids. ROSENBERGER.

In the *New Orleans Medical and Surgical Journal* for October, 1930, Lurie reports the treatment of tic douloureux by the injection of 2 to 4 c.c. of 1 per cent quinin urea per ora into the space just back of the malar process. He believes the beneficial effect to be due to the production of a nonpathological perineural fibrosis. The author objects to alcohol injections of the fifth nerve on the grounds of frequent failures and trophic disturbance of the eye.

ROSENBERGER.

Sell, of Berlin, in the Zeit. fur H., N. & O., Bd. 25, Heft 5, discusses quantitative audiometry with speech. He states that separate pure tones are insufficient for the determination of hearing power for speech. He suggests the use of an apparatus in which sounds are produced by a gramophone and may be modified in intelligibility and intensity. By means of mathematical deductions with the use of resistances, a graph may be obtained for normal hearing and in almost any variation to total deafness. Thus, a middle ear deafness case gives a definite graph which is quite different from that of nerve deafness.

Penkert, in Orvosi Hetilap, 1930-712, reports an interesting case of congenital atresia of the external auditory canal. In the external opening, completely covered by normal skin, were several small masses about the size of linseed and of elastic consistency. Histological examination of these masses showed beginning papillomata, and the author concludes that the condition was a developmental anomaly, probably hamartomous in type. KELEMEN.

Panneton and Longpre, in Annales de Malladie de l'Oreille, September, 1930, discuss the importance of an exploratory puncture of the middle ear in infants. The authors' experiences have convinced them that where the focus of infection is obscure, the middle ear is very often at fault. They discard otoscopy, not only because of its difficulty in the infant, but also because of the latency of infection, and they resort to exploratory puncture of the middle ear as a means of diagnosis of otitis.

Without anesthetic, a hypodermic needle with syringe attached is directed, by means of touch, into the posterior portion of the middle tympanum. When aspiration reveals the presence of infection, then further operative measures must be undertaken.

They claim to have reduced very considerably the mortality in their hospital in the past three years and, therefore, plead for its greater recognition and use as a practical means of diagnosis.

Dörner, in Orvosi Hetilap, 1930-708, reports good effects from the use of trypaflavin in ulcerative laryngeal tuberculosis. After the mucous membranes are thoroughly cleaned and the mucus wiped off, the powdered trypaflavin is rubbed into the affected parts. This therapy seemed to have a remarkable effect on the pain and in many cases the pain completely disappeared.

The explanation of this action is given as follows: Trypaflavin is known to be a strong antiseptic for streptococcus and staphylococcus; the pain in the lesions is attributed to a mixed infection and by the action of trypaflavin this mixed infection is remarkably controlled. KELEMEN.

Kaiser, of Rochester, N. Y., in the Sept. 20, 1930, issue of the *Journal A. M. A.*, presents a carefully worked out article on the comparative study of 2200 tonsillectomized children, with an equal number of controls three to ten years after operation.

He concludes that the real value of removal of tonsils and adenoids cannot be definitely established in a few years. The apparent benefits during the first few years are not so effective over a 10-year period. Benefits are apparent in lessening the incidence of sore throats and in rendering children less susceptible to scarlet fever and diphtheria. Acute head colds and otitis media, though definitely lessened over a three-year period, are not essentially influenced over a ten-year follow-up period. Cervical adenitis is decidedly reduced in tonsillectomized children. The respiratory infections, such as laryngitis, bronchitis and pneumonia, not only are not benefited, but actually occur more frequently in tonsillectomized children. First attacks of rheumatic manifestations occur from 30 to 50 per cent less often in tonsillectomized children; recurrent attacks are not benefited at all.

CORRECTION.

Since the publication of an article by myself, entitled "A Method for the Repair of Persistent Postauricular Openings," it has been called to my attention that the use of the temporal muscle graft had been previously described by Harold Kisch for the filling in of the mastoid cavity in the performance of a radical mastoid operation, thus obviating the necessity of performing a plastic operation on the membranous canal. While I do not employ the temporal graft in any operative otological work except for the condition designated in my paper, I wish to acknowledge Kisch's prior description of the use of the temporal muscle in mastoid surgery. RALPH ALMOUR.

THE NEW YORK ACADEMY OF MEDICINE.

SECTION OF LARYNGOLOGY AND RHINOLOGY.

Meeting of April 23, 1930.

Symposium on Ethmoids.

The Clinical Anatomy of the Ethmoidal Labyrinth. Dr. E. Parsons Schaeffer.

(Appeared in full in September, 1930, issue.)

Nonsurgical Treatment of Ethmoiditis. Dr. J. Ivimey Dowling.

(Appeared in full in September, 1930, issue.)

Zinc Ionization of the Ethmoids. Dr. John McCoy.

(Appeared in full in September, 1930, issue.)

Intranasal Surgery of Ethmoids. Dr. Sidney Yankauer.

(Appeared in full in September, 1930, issue.)

External Operation of Ethmoids. Dr. E. Ross Faulkner.

(Appeared in full in September, 1930, issue.)

DISCUSSION.

DR. FRANCIS J. WHITE: To mention the ethmoids today is somewhat comparable to the mentioning of the internal ear 15 or 20 years ago—it leads into a labyrinth of discussion, especially from the operative standpoint.

To discuss Dr. Schaeffer's paper, it would be necessary to take his book aside for a week or 10 days' perusal and then say, "In principle and in detail, I agree, sir." It is exceedingly kind of him to come here and further elucidate for us.

All of us have used Dr. Dowling's method in the treatment of ethmoiditis. The disadvantage is, patients have a tendency to institute home treatments. They do it well, but not wisely.

Zinc ionization, I have not carried out, but am glad to hear the report by such a conscientious observer as Dr. McCoy. Dr. Yankauer is always original and exceedingly deft with his hands; Dr. Faulker—most of us know of his prowess as an operator upon sinuses.

If I were called upon to give the definition of a classical operation, I would say it is an operation worked out in detail and proved by hard experience to be the best for a particular condition—and then, promptly modified by everyone who attempts to perform it.

Both the internal and external routes of attacking the ethmoids have definite indications. These, plus the greater dexterity of the operator in doing the one or the other, is also a further determining factor. As a modificationist, I use both curette and biting forceps. The curette is used in all situations and the biting forceps rarely beyond about the middle of the posterior set of cells. At all times the forceps are used more as a nibbling instrument and not with the idea of removing comparatively large quantities of tissue at each bite. If hemorrhage is being sought, just keep biting toward the bases of the larger septa!

The sphenoid is opened by means of a narrow, pointed curette, and a relatively clear view into the sphenoid obtained. By means of a beaded probe, a search is made for dehiscences and at the same time the extent of the sinus is estimated. A narrow biting forceps is now used for removing the anterior wall downward and inward but not *outward*. Grazing the *facial* nerve with a curette is not as disastrous as biting it with a rongeur—the optic nerve is not an exception.

Visualize the separated index and middle fingers as being the respective optic nerves running forward from the optic foramina to the eyeballs. It is easy to orient the posterior ethmoidal cells and the sphenoids thus. The further back, the closer the nerves come together and, consequently, the closer to the lateral wall of each individual ethmoid cell and sphenoid. In the latter, there may be the lining membrane only, in contact with the nerve, and in the ethmosphenoids, but a paper-thin film of bone. Unfortunate, indeed, is he who has not the opportunity to study these areas in detail in the cadaver, or in the wet or dry specimens.

There are four evident causes for operative failures: 1. Unfamiliarity with the anatomy of the parts. 2. Lack of dexterity—the heavy surgical hand. 3. The desire to do a too clean operation. 4. An anomalous condition present precluding the most skillful operator obtaining a perfect result.

DR. LEWIS A. COFFIN: Mr. Chairman, I am glad of the opportunity to congratulate you upon the program of the evening. It has been a wonderfully instructive symposium. I am indebted to Dr. Dowling, not only for the effect that his method of treatment has had in my practice, but from the personal benefit I have had from it in the hands of others. Dr. Yankauer has given us a wonderful demonstration of a fairly radical and safe operation, especially in those cases having what I think we deem a typical anatomy. On general principles, I am opposed to the use of a curette in a diseased ethmoid tract. Of the curettes in use, I think Mosher's is the safest and best. For safety, it must be used as Mosher has advised. With the anatomy of the ethmoidal tract, as it may be as shown by Dr. Schaeffer tonight, no one need feel discouraged if the results of his intranasal surgery are not 100 per cent of those desired. External operations may be made much more radical with greater safety to the patient.

DR. HARMON SMITH: I had noted for some time both a mental and physical improvement in Dr. Coffin, but had not attributed it to change of heart in regard to his attitude toward the suppurative involvement of the ethmoids. I'm most pleased to learn that when the personal equation is at stake, that he is willing to at least try a less radical method than one he has so long and ardently advocated.

I'm not alone in my endeavor to persuade the profession that treatment can often become as effective as operative measures; but it has been an unrewarded endeavor to influence most practitioners that the less spectacular cure is as satisfactory and as lasting as the operative method.

I have employed Dr. Dowling's idea for a number of years, but have recently used other colloidal silver preparations instead of argyrol, owing to the disagreeable staining, both of patient and physician, when using arygrol. I must confess, however, that arygrol is more satisfactory in its results than any of the other colloidal silver preparations. I'd like to ask Dr. Dowling if he has discovered any way to avoid the stain of argyrol, either to patient or physician.

DR. M. D. LEDERMAN: I wish to express my appreciation of this very interesting symposium, and would like to answer Dr. Harmon Smith's question in reference to a cleaner preparation for use in Dr. Dowling's method of treatment. I have been using "Lunosol," a colloidal chlorid preparation of silver, made by one of the pharmacologists who brought out argyrol; it works in the same way and is a cleaner preparation, being the color of milk.

After all the surgery we have seen demonstrated tonight, and as one grows older, one becomes more conservative in invading the hidden territory of the nose. This precautionary measure has prompted me to use a preparation with an active principle, which we all know—iodin powder, which I have used for 17 years in the ear—a combination of iodin and boracic acid, which is one of the few powders that gives off a nascent iodin when in contact with moisture —iodin powder (Sulzberger). If one doubts the action of the nascent iodin and the promptness with which it is given off, one has only to snuff it up the nose and note the effect. I would, however, suggest the use of the weaker preparation, 0.75 per cent, and precede its application to the nose by a solution of cocain, 0.5 to 1 per cent, and then simply blow in enough of the powder to dust over the middle turbinate and in between the middle turbinal and septum. I have seen it very satisfactorily used in a number of cases. It does not

retard drainage, and promptly stimulates osmosis. The swollen mucous membrane must be contracted by spraying or applying a solution of ephredin; if there is much purulent secretion present, this should be removed before the iodin powder is applied. Once again, I must remind you that there is an attempt to substitute other powder for the original iodin powder (Sulzberger), which I have used for 17 years, and must caution you to specify the name as given, if you desire the proper powder.

DR. WILLIAM WESLEY CARTER: I have listened with deep interest to these men who are so enthusiastic about radical operations on the sinuses and who have described their technique in such a graphic manner.

Some of the operations devised for the relief of chronic sinusitis are marvels of ingenuity, and from a mechanical point of view they are ideal. But what about the ultimate clinical results? These are what every surgeon should regard of prime importance, for the object of all our efforts is to relieve human suffering and to prolong life and make it as comfortable as possible.

In the first place, radical sinus operations are dangerous, and this danger cannot be eliminated by even the most skillful operator. We know that there are many fatalities due to meningitis following radical operations on the ethmoids. We may hear of them unofficially but they are seldom reported. Besides this, we know that very few radical operations result in cures. The patients are usually left to contend during the remainder of their lives with extensive scar-tissue areas that may be dry and scabbing, or constantly bathed with purulent debris. Ciliated epithelium once destroyed is never replaced by similar tissue, and a sinus is as healthy as its cilia.

I have observed some of the results of radical operations done by some of the most experienced men in New York and elsewhere, and I am convinced, from what I have seen, that conservatism should be the keynote of the day. The pendulum is swinging in this direction but it has not yet gone far enough.

There are undoubtedly some cases that require the radical operation, but if accepted methods of local treatment and minor operations for the improvement of drainage, together with proper general treatment and possibly climatic changes, are given a fair chance, the necessity for major surgery upon the sinuses will occur with less frequency and, in my opinion, this will be a distinct advantage to the patient, and in the long run will reflect credit upon our specialty.

DR. MARVIN JONES: I wish to express my appreciation to Dr. Dowling for this treatment which he has urged. I think that possibly his first presentation of the method may not have been received with all the enthusiasm that it deserves, but many have since taken it up and found it all that Dr. Dowling has claimed for it.

DR. J. IVIMEY DOWLING: Replying to Dr. Smith's question concerning the removal of arygrol stains from the face or hairy parts, it is best accomplished with the use of pure dioxygen, scrubbing the parts until clean.

DR. SIDNEY YANKAUER: I only wish to say this: That because I have been asked to demonstrate a radical operation—which is conservative in its theory and execution—that that does not mean that I necessarily prefer the radical operation to any other method of treatment. On the other hand, I go through every conservative measure before I advise my patient to have a radical operation done; and ever since Dr. Dowling demonstrated his method, that has been added to the measures I use. I never advise any patient to be operated upon at once unless it is an obviously hopeless case otherwise.

DR. E. FAULKNER: The intranasal operation which I have practiced is a modification of the original Mosher operation, but done with instruments devised to render the procedure as safe as possible. In teaching students for a number of years the various intranasal operations on the sinuses, I found it rather astonishing how much damage could be done by the inexperienced with many instruments which might be perfectly safe in the hands of an expert. Now, I found in operations on the cadaver, with subsequent section of the head to observe the result, that the method I am going to demonstrate seemed to give the best percentage of thorough exenteration of the ethmoids and, besides, was attended with many less mishaps which would have been serious in their results for a patient.

SECTION OF OTOLOGY.

Meeting of May 9, 1930.

Election of officers resulted as follows:

Chairman—Hugh B. Blackwell.

Secretary—Rene Hector Huvelle.

One Member of Advisory Committee—Jas. G. Dwyer.

Case Showing Hearing Result After Right Radical Operation Compared with Result Obtained After Left Modified Radical Operation. Dr. Clarence H. Smith.

J. K., age 10 years, was seen first by the writer on Sept. 9, 1929. She had double chronic purulent otitis media, which had been sequelae from an attack of scarlet fever seven years previously. Both canals were filled with a profuse, very offensive discharge. The right ear was the worse, the drum being completely destroyed, the ossicles disintegrated, and the hearing being a loud voice at 4 inches. There was part of the drum remaining on the left side, and the hearing ability was 8 inches for a conversational voice.

The child was dull and apathetic and had a sallow skin with the hue associated in our minds as due to sepsis.

A radical mastoid operation was performed on the right side, with a skin graft. This was completely dry in about four weeks.

A modified radical mastoid operation was performed on the left side, which resulted in a dry ear in about two months' time.

The hearing result is the interesting point in this case, and is the reason for my taking up the time of the Section in presenting it. The child's hearing has improved on the right, or worse ear, from a loud voice at 4 inches to a conversational voice at 12 feet. The hearing on the left side has improved from 8 inches for a conversational voice to 12 feet.

One does not ordinarily expect such a marked improvement after a radical operation, and when one gets it, it is oftenest in a case like this, where the ossicles and drum had been destroyed and the middle ear was a mass of granulation tissue and detritus, which hindered the transmission of sound. Now, of course, the hearing is unobstructed and direct through the windows and, fortunately, the amount gained is well worth while.

Incidentally, the child's general condition has improved a great deal, she has gained considerably in weight, is now attending school, where she holds her own, and there is a marked change in her bearing and disposition.

DISCUSSION.

DR. I. M. HELLER: I would like Dr. Smith to tell us the type of the modified radical.

DR. C. H. SMITH (closing): The operation performed on her was the Bondy modified radical, so beautifully done by Dr. Blackwell. In this the attic is cleaned out as much as possible, the roof of the aditus is removed, including all of the bone in the epitympanic ring over the aditus, just as if one were doing a radical mastoid, care being taken, however, not to disturb the ossicles and their ligaments or the drum membrane. The posterior bony wall is then leveled to the safety point. The inferior surface of the external bony meatus is curetted to obliterate the concavity there. Then a flap is made as in the radical operation, and the wound is drained through the meatus.

DR. H. B. BLACKWELL: I wish to congratulate Dr. Smith on the results which he has obtained in operating for the relief of chronic otorrhea of children, as shown by the cases which he has presented here tonight.

I tested the hearing of the child upon whom a radical had been performed on one side and a modified radical on the other side and while the functional result is surprisingly good on both sides, I am confident that the hearing in the ear upon which the modified radical had been performed is much better than in the ear upon which the radical was done.

Report of Case of Double Mastoid Infection Caused by Type III Pneumococcus Mucosus. Dr. Stuart L. Craig.

The patient, female, age 14 years, Spanish, had a severe cold in September, which involved the sinuses, followed by double acute otitis media. Both ears were opened on Oct. 5. At the end of two weeks both ears had stopped discharging. The patient was apparently well except for frontal headaches and some nasal discharge. She passed out of the care of the physician in the country as cured. On Nov 11, she was referred to a physician in New York, who found some evidence of involvement of the nasal sinuses but considered her ears negative. Five days later, a second specialist was consulted, who on examination pronounced her ears normal and found a large mass of adenoid which contained an abscess. The adenoid was removed on Nov. 18. After five days, the patient left the hospital, showing considerable inflammation of the throat, some swelling of the glands, but otherwise convalescing. Two weeks from the day of operation, on Dec. 6, the patient had a severe pain in the right ear, was returned to the hospital and the right ear was punctured on the following day, Dec. 7. The discharge following myringotomy was not profuse. There was no culture or smear made. After several days, an inflammation of the canal developed, which practically prevented a view of the drum and resulted in extreme tenderness of the skin surrounding the canal and over the mastoid. At this time the glands of the neck became markedly enlarged, almost down to the clavicle, and the temperature ranged from 102° to 103°. The diagnosis at this time was multiple furunculosis, complicating otitis media.

I first saw the case on Dec. 16 in the afternoon. The temperature was 102°. There was marked enlargement of the cervical glands, both anterior and posterior groups, with definite swelling over the lower part of the mastoid, below the ear, and extending forward beyond the angle of the jaw. She was acutely tender over this whole area and extremely sensitive to any manipulation of the ear itself. The canal was practically occluded and it was impossible to obtain a satisfactory view of the drum. The swelling of the canal was diffuse and there was no focal point of infection. There was a scant discharge coming from the middle ear. A smear and culture showed only staphylococci. The blood count on this day was 18,000, with 88 per cent polys. An X-ray made on this day showed a clear pneumatic mastoid on the side of the affected ear and a slight cloudiness of the left mastoid.

On the following day, the condition remained unchanged, except that there was apparent beginning localization of the lower anterior cervical glands, and the surgeon, who was in consultation, felt that they would probably point within 24 hours. The following day, Dec. 18, in the late afternoon, the patient's temperature rose to 104.5°. The swelling of the neck had receded somewhat below and there was more pronounced swelling, tenderness and edema over the region of the mastoid. There was scant discharge from the middle ear and almost complete closure of the canal. It was decided in consultation with the attending general surgeon that an exploratory operation was justified.

The usual mastoid incision was made and free pus was found in the soft tissues covering and below the mastoid. Exposure of the mastoid showed no perforation and no discoloration of the bone. The mastoid was opened and, once through, the cortex was found to be completely broken down and the mastoid cavity filled with a thick pus and granulations. There was a large perisinus abscess extending from the knee almost to the tip. The sinus was covered with very dense granulation mass. The sinus plate was removed to the facial ridge below and to a distance of 1 inch posterior to the knee behind. The sinus wall was white and thickened but it appeared to be filled with blood. We judged at this time, in as much as considerable time had been consumed and the patient's condition was not very favorable, that it would be wise to await the course of events before deciding upon opening the sinus and ligation of the jugular. A culture was made from the mastoid at the time of operation but showed no growth. Other cultures taken direct from ear showed staphylococci. Following the operation, her temperature remained practically normal for seven days, the general condition of the patient was excellent and she was apparently progressing toward recovery.

On Dec. 26, the eighth day after the operation, the patient had a chilly sensation, followed by a temperature of 104°. The blood count this day

showed 30,000 leukocytes, with 90 per cent polys. A blood culture made this day was reported on the day following, Dec. 27, as definitely positive, showing a heavy growth of pneumococcus, Type III.

The family physician raised a strong question as to the possibility of a lung involvement. This question was settled on the afternoon of the twenty-seventh, when an X-ray of the chest proved negative, and immediate operation was decided upon. The jugular vein was ligated and resected, the sinus exposed as far back as the edge of the torcular. The vein was found completely thrombosed and contained a clot which showed areas of free pus. Some bleeding was obtained at the torcular end of the sinus, but not free. No bleeding was obtained at the lower end of the sinus, which was exposed and opened as low down as possible. A transfusion was given on the table following the operation, 900 c.c. of blood being given.

A blood culture on Dec. 29 showed 100 colonies to the c.c.; on Dec. 31, 20 colonies to the c.c. On Jan. 6, the blood culture was negative, and again on the ninth, tenth and sixteenth.

From the day of the operation, Dec. 27, until Jan. 7, the patient's temperature curve was entirely in keeping with a steady recovery, and our impression that her convalescence was assured was strengthened by the negative blood culture on Jan. 6. From Jan. 7 she ran an erratic temperature, ranging from 100° to 103° approximately. Beginning Jan. 22, she began to run a temperature with high peaks, 104°, and back to the low point of normal, or a degree or a degree-and-a-half above normal.

On Jan. 20, she showed a positive blood culture at the end of the fourth day, 5 colonies to the c.c., but at no time after that did she show a positive blood culture. Transfusions were done following the operation on Dec. 31, Jan. 10, Jan. 15, Jan. 20 and Jan. 31. The left ear was examined repeatedly by both myself and my associates, and at no time did it show more than a slight thickening of the drum and some retraction. Beginning on Jan. 8, the patient began to complain of considerable pain in the right eye and in the right frontal region, with some pain in the left eye in the left frontal region. Examination of the eyes by Dr. McDannald was entirely negative. This pain at times was quite severe. From Feb. 1 to Feb. 4, the temperature ranged from 100.2° to 101.8°. The condition of the patient was surprisingly good and again we had high hopes of her steady progress toward recovery. Blood cultures had been negative since Jan. 20, the patient was free from pain, eating and sleeping well. On Feb. 5, her temperature went to 103° and she began to complain of severe pain around the left ear and showed a swelling in the neck, all the cervical glands on this side being involved much in the same manner as the right side had previously been. On Feb. 7, the swelling and tenderness had markedly increased over the whole left side of the neck, extending from the clavicle to the mastoid tip. The left drum at this time was negative except for a slight thickening. There was marked tenderness along the course of the jugular vein.

After much deliberation we decided to explore this mastoid, and this was done on Feb. 7. There was no evidence of disease in the mastoid until the sinus was reached, and at the lower part of the sinus a perisinus abscess was found. The sinus was exposed throughout its entire length, through the mastoid and to something over an inch behind the knee, was discolored throughout, found filled with free pus back to the knee and with a clot behind the knee. No blood was obtained below—free blood from the posterior end. The jugular was exposed and resected and found filled with a broken down clot and free pus from its emergence from the jugular foramen down to the clavicle. It was ligated and resected throughout its length. For 48 hours the patient's temperature and general condition was in keeping with a favorable progress. On Feb. 9, however, there was a sudden temperature rise to 105°, with a rapid appearance of the signs of a diffuse meningitis. She died in 48 hours.

Dr. McDannald's Findings in Typaldos Case: Dec. 23, 1929: Patient complained of very severe pain in right eye, which was very slightly influenced by any type of drug. Eye examination at that time was entirely negative and vision appeared to be normal.

Jan. 8, 1930: Patient still complained of pain in right eye, eye grounds were negative, vision was 20/20 in each eye; was greatly annoyed by light (she

complained of this at first visit also). Made field plotting and fields for form were normal.

Jan. 29, 1930: Complained of severe pain in left eye (that in right eye had subsided) running back over the temple region. At that time thought her veins were slightly engorged. All of her muscle excursions normal at that time. Complained of dizziness.

On last visit, complete nerve paralysis on right side with partial third nerve paralysis on left side. Sixth nerve on both sides intact.

Blood Counts: Dec. 10: Hmgb., 73 per cent; red, 4,320,000; white, 19,500. Dec. 14: Hmgb., 80 per cent; red, 4,150,000; white, 18,000. Dec. 17: White, 18,000. Dec. 26: Hmgb., 90 per cent; red, 4,700,000; white, 30,000; blood culture positive, pneumococcus Type III. Dec. 29: Blood culture, 100 colonies to 1 c.c. Dec. 30: Hmgb., 100 per cent; white, 6,500. Dec. 31: Blood culture, 20 colonies to 1 c.c.. Jan. 4: Hmgb., 100 per cent; red, 5,700,000; white, 11,500; poly., 80 per cent; lymph., 20 per cent. Jan. 6: Blood culture negative. Jan. 9: Hmgb., 100 per cent; white, 15,000; poly., 88 per cent. Jan. 16: Hmgb., 85 per cent; red, 6,000,000; white, 10,000; poly., 80 per cent; ?????, 20 per cent. Jan. 20: Hmgb., 92 per cent; red, 8,000,000; white, 10,000; poly., 78 per cent. Jan. 22: Hmgb., 1005 per cent red, 10,000,000; white, 21,300; poly., 90 per cent. Jan. 23: Hmgb., 105; red, 12,000,000; white, 14,300; poly., 80 per cent. Jan. 29: Hmgb., 102 per cent; red, 8,000,000; white, 20,000; poly., 94 per cent. Jan. 30: Hmgb., 94 per cent; red, 5,700,000; white, 20,000.

DISCUSSION.

Dr. Wesley C. Bowers: I wish to congratulate Dr. Craig on the way in which he handled this case. It is a beautful example of what the pneumococcus Group III will do in the temporal bone.

Three years ago, I reported a case which showed pneumococcus Group III in both ears at time of myringotomy. These ears healed in two weeks, drums and hearing returning to normal. Two months later, a right facial paralysis developed. At this time, the ear drums and hearing were still normal. Culture from the mastoid was sterile. A few days later, a petrous bone abscess was discovered, from which pneumococcus Group III was isolated.

This case and Dr. Craig's illustrate well the possibility of the existence of a pneumococcus abscess without any signs whatever in the ear itself. Personally, I feel that it is safer to operate earlier on Group III infections in the middle ear and mastoid than one would in the case of any other organism.

Dr. L. T. LeWald: I was interested in the X-ray report of the left mastoid. Did that show any indications around the sinus that might have led to earlier recognition of the condition on the left side? The statement made about the two sides was rather paradoxical. I would like to know if any follow-up radiographs were made, as the reported cloudiness of the left mastoid might have increased and pointed way toward earlier operation.

Dr. Craig (closing): The ear was X-rayed again on Feb. 5; nothing more than a very slight cloudiness was found; the reading of the plates, both sets and both sides, did not show enough to justify operative interference.

Report of Two Cases of Pharyngeal Abscess Rupturing Into the External Canal Wall of the Ear. Dr. Edgar M. Pope.

Case 1: This patient, B. B., female, age 24 years, was admitted to Bellevue Hospital, April 28, 1927, with a profuse discharge from her right ear. Three weeks before admission, she developed a sore throat and fever. She began to have pain in her right ear a week later, and at this time a furuncle on the floor of her right external canal and also her right drum membrane were incised. Her ear had been draining a profuse, foul, purulent discharge since.

Examination of right ear revealed a small crater-like eminence on the floor of the canal at about the junction of the osseous and cartilaginous parts, through which a profuse, purulent, foul discharge was pouring. The discharge returned as soon as it was wiped away. There was a small posterior perforation in the drum, from which a scant serosanguineous discharge was exuding.

Examination of the throat revealed a considerable swelling in the lateral pharyngeal aspect immediately behind the right posterior pillar. The right tonsil was seen to be pushed forward. Pressure upon this mass quickly filled the

external canal with pus. The abscess was incised on the same day, and a quantity of pus evacuated. We were able to pass a small silver probe through from the opening in the external canal to the abscess cavity in the pharynx. Two days later, the drum incision had entirely healed, but there was still a small amount of purulent discharge from the fistula in the floor of the canal. The following day, May 1, 1927, the canal was dry and healing over. Patient was discharged from the hospital.

Case 2: This patient, N. A., female, age 8 years, was admitted to Bellevue Hospital, April 5, 1930, with a profuse discharge from the right ear. She had had a sore throat for two weeks prior to admission. On the preceding evening she developed pain in the right ear, which was soon followed by a profuse discharge. The pain in the ear and throat still presisted. There was no previous history of ear or throat trouble.

Examination of the right ear showed a teat-like projection on the floor of the canal at about the junction of the cartilaginous and bony parts, from which a profuse, foul, purulent discharge was pouring. The pus returned as quickly as it was wiped away. There was so much edema and swelling of the external canal that the drum could not be seen. Upon examining the throat, it was quickly seen that the right tonsil was pushed forward. Immediately behind the posterior pillar in the lateral pharyngeal wall was a large swelling that extended from the base of the tonsil below to slightly above the soft palate. Pressure upon this mass immediately filled the external canal with pus. Upon admission to the hospital, the patient's temperature was 102°. The abscess was incised April 9, and in four days the ear was entirely dry. On April 14, I attempted to inject lipiodal into the tract through the external canal, but it had entirely closed up.

From the beginning of both of these abscesses in the lateral wall of the pharynx, I feel that they had their origin in the subparotid lymph glands. These glands lie internally to the parotid gland, and separate it from the lateral pharyngeal wall. The abscesses, arising from these glands, passed anteriorly and laterally to the internal carotid artery, and then posteriorly and laterally to the parotid gland, gaining access to the external ear canal through the fissure in the cartilaginous wall, or through the junction of the body and cartilaginous walls.

DISCUSSION.

Dr. I. M. Heller: I was very much interested in Dr. Pope's presentation, for a year ago I had two of these cases and in the last month another, and the history of all is exactly the same. They start with a throat infection after an ordinary rhinopharyngitis. The temperature then drops to, say, 99.5°, and apparently the child is doing well; then gradually a swelling appears on the lateral side of the pharynx, pushing the tonsil forward. The first case I thought was an ordinary retropharyngeal abscess, and put a knife to it, but did not cure it. There was no softening in the throat; I watched the case, however, and was very much surprised when the mother a little later brought the child in with a discharge from the floor of the external auditory canal. The second case was the child of a doctor; it began in the same way, and then ran a temperature of 103-4°, etc. With this case there was a little swelling on the outside, and Dr. Bass and Dr. Schick thought the child was going to have an ordinary adenitis. This case also ruptured through the external meatus and the throat fullness disappeared. Both cases discharged half-a-dozen drams of pus at the outside.

The third case was a little more severe than the others. This boy started like the others; and then had an enormous brawny type of swelling at the angle of the jaw, but there was always a prominence on the lateral pharyngeal wall. I prophesied that it was going to rupture through the external auditory meatus, which it did in four days. The discharge was very profuse, indeed; it would well up as fast as sloughed out and the child was running a temperature of 103.5; and as I saw there was not sufficient drainage through the meatus the child was sent to the hospital for observation. An incision was made as for the ligation of the jugular; went alongside the sheath of the vessels, separated the tissues, and got into a pocket between the larynx and esophagus, that must have held 2 or 3 ounces of pus. A probe going through the external auditory

meatus went into this cavity, which extended forward to the base of the tongue and back to the mastoid process. The boy is now convalescing in the hospital.

I don't think Dr. Pope had his anatomy just right in these cases. Dr. Henry Heiman has published an article on parapharyngeal and paralaryngeal affections. The superficial glands are the ones ordinarily affected in the retropharyngeal abscesses, the deep glands beneath the deep fascia in the afore-mentioned type. They are necessarily deep for they lie beneath the deep layer of fascia surrounding the sternocleido muscle; and when these glands become infected, in order to discharge externally they would have to come out either through the sternocleido muscle or through the path of least resistance upward to the external auditory meatus. The late Dr. Glogau wrote an article in which he spoke of blocking off the anterior mediastinum with gauze—"the protective collar"—and these cases, if they don't discharge externally, may extend down into the mediastinum. Some years ago, I had such a case, which I thought was a retropharyngeal abscess and which I incised, but found no pus and the child finally died of a mediastinal abscess. I think these cases are more common than they are supposed to be, and they are incorrectly diagnosed as retropharyngeal abscesses. I have had three, and Dr. Pope has had two, making five within a comparatively short space of time.

DR. C. H. SMITH: Last winter, I saw a somewhat similar case in a peritonsillar abscess drained through the external auditory canal. When I first saw the patient there was a very profuse purulent discharge in the external auditory canal. Examination of the throat revealed a quinsy on the same side. Incision and drainage of this quickly resulted in closure of the canal opening.

DR. POPE (closing): Referring to the anatomy of the abscess, and its possible origin, Dr. Heller spoke of his third case, and going in from the outside of the neck to the larynx. These abscesses were above the larynx; they were pharyngeal. I assumed the origin was in the glands in that neighborhood, the subparotid.

A Case of Petrous Bone Abscess Drained Through the Middle Ear. Dr. Wesley C. Bowers.

Case History: W. H. S., age 68 years, came to me five months ago with the following history: One year previously, he had developed an acute otitis media on the left side; eight months ago, a simple mastoidectomy was performed. The wound healed completely, but the discharge persisted, with severe attacks of pain in the left temporal and occipital regions.

Examination revealed a tympanic membrane, which was complete except in the upper posterior portion, where there was a perforation in the meatus leading into the attic. The hearing in the left ear was 30 per cent off, caloric was positive, culture taken at this time showed staphylococcus aureus.

On operation, I found cells in every portion of the mastoid, especially over the antrum and over the floor of the middle fossa. The dura had been exposed by disease in the middle fossa. Because the drum appeared to be in such perfect condition, I decided to do a modified radical operation. On the completion of the operation, before I had sewed up the wound, I was astonished to see a great quantity of pus in the external auditory meatus. Since it was inconceivable that this pus could come from anywhere save behind that tympanic membrane, I proceeded to do a complete radical operation. After removing the ossicles and tympanic membrane and cleaning out the membrane in the middle ear thoroughly, I saw no evidence of pus, although I searched for a considerable period in an endeavor to locate a possible source. The cavity was packed and the posterior wound closed. During the operation, the facial nerve was exposed in the descending portion.

Subsequent Course: There was some facial weakness immediately after operation but this cleared up in about two weeks. The cavity dermatized with the exception of an area over and below the promontory and behind the meatus. This condition persisted for two months, during which time it was impossible to make these areas heal over. At the conclusion of this period, novocain was injected into the canal and the tissues of the middle ear, and all the tissues on the floor of the middle ear, over the promontory and in the tube was cleaned out. There was still no evidence of any source of discharge. After leaving in this area a pledget soaked with adrenalin for two hours, I saw a tiny fistula

from which a small amount of pus was coming; this fistula lay directly below the promontory. A fine probe entered the opening for a distance of about 4 c.m. I enlarged the fistula to a size which would permit the entrance of a catheter 5 m.m. in diameter; several drams of thick pus were evacuated. A number of cultures were taken of this pus, all of which were reported as containing staphylococcus aureus, except the last one, which was reported as pneumococcus, Group III.

One of the interesting facts in this case is that while enlarging the fistula, the patient, without any twitching of the face, three times suddenly showed marked facial paralysis, which would last from 40 to 50 seconds and then disappear. This condition recurred once again two hours after he had left the office. The paralysis could not have been due to any trauma as the facial nerve was not near the field in which I was working.

It is of interest to observe that at one time while the catheter was in the orifice, the tube became obstructed for a couple of days in succession. At this period, the patient developed an edema of the palate and the left side of the pharynx.

The catheter has now been out for four weeks. The patient has experienced occasional slight fullness in the head but no real pain. There is at present a little watery mucoid secretion coming from a pinpoint fistula at the old site.

Conclusion: This is a case of petrous bone abscess, extending into the naso-pharynx, which up to this date has apparently been well drained. The labyrinth is still active. A moderate voice is heard at the meatus with the Barany apparatus in the right ear.

A Plea for the More Frequent Use of Local Anesthesia in Mastoidectomy.
Dr. L. M. Hubby.

(To appear in a subsequent issue of THE LARYNGOSCOPE.*)*

DISCUSSION.

DR. BLACKWELL: What per cent of the anesthetic did you use? What was the average amount of the solution injected? In recent years, owing to the development of gas-ether anesthesia, we have neglected local anesthesia, which was more used formerly, and I am interested to hear the subject brought up again.

DR. I. M. HELLER: I feel that while there is a limited place for this method, there are also objections; it requires considerable time for infiltration, and there is the possible danger in the giving of morphin and scopolamin. As the Chairman said, with our modern method of gas-ether anesthesia, except in certain cases—heart and kidney and diabetes cases, though now that we have insulin the surgeons will operate on cases of diabetes as they would not before—the general anesthesia seems preferable. Dr. Hubby spoke of using the local anesthesia in young children and infants. Personally, I should hesitate to do a mastoidectomy under local anesthesia on a child six months old; it is almost impossible to control the movements of the child and it will wriggle. A few whiffs of ether puts the child under complete anesthesia, and the operation can be very rapidly done. I feel that under given conditions there is more risk under local anesthesia than with ether.

DR. HUBBY (closing): Replying to Dr. Blackwell's question: I use 1 per cent solution of novocain in adults, and 0.5 per cent solution for children. With a simple mastoid, one would not use more than 20 c.cm. of the solution.

In regard to marasmic infants, I have recently operated on two who were as nearly moribund as you could imagine, and you would not have dared to give them either nitrous oxid gas and oxygen or ether and the involvement extended to the sigmoid sinuses, so they were not short operations. Both left the operating table in as good condition as before the operation. With a child who is marasmic and apathetic, having had a temperature up and down for a long time, you would certainly be surprised to see how little the operation bothers them. A child in that condition is apathetic; it might be expected that the nurse would have to struggle to hold the head and keep it still, and yet in one of these cases, although the nurse held its head, it did not cry nor move during the operation, and only cried when it was removed from the table. We are too much afraid of operating on these marasmic cases that are almost moribund. Under local anesthesia they should leave the table in about as good condition as when they came on.

SECTION OF LARYNGOLOGY AND RHINOLOGY.

Meeting of May 28, 1930.

Election of officers resulted as follows:
Chairman—Dr. John M. Lore.
Secretary—Dr. Robt. E. Buckley.
One Member of Advisory Committee—Dr. Harmon Smith.

Neuralgias of the Head. Dr. Samuel Brock.

(Appears in full in this issue.)

DISCUSSION.

DR. J. I. KLEPPER: I congratulate Dr. Brock upon his detailed presentation. The Doctor presented the paper very minutely, but he said nothing about the recurrent meningeal, indirectly a branch of the trigeminal ganglion. The recurrent meningeal, or nervous spinosum, has a wide distribution and may be involved in diseases of the ganglion and conditions involving the sensory branch of the mandibular division of the fifth nerve. The wide distribution of this nerve, supplying the meninges on the same side, the bone, as far anteriorly as the frontal region and posteriorly to the mastoid and lateral sinus, give this nerve a very important place in intracranial headaches or associated with neuralgias of the Gasserian ganglion. This nerve may also be injured, not alone intracranially, but directly through the Gasserian ganglion or at its entrance into the foramen spinosum. I should like to hear Dr. Brock say something about this nerve.

DR. BROCK (closing): I purposely omitted consideration of the many forms of diffuse headache, most of which are mediated by the meningeal branches of the trigeminal nerve. As you know, the Gasserian ganglion has been injected from without in migraine, with relief of the hemicrania. (See W. Braeucker: The Vegetative Nervous System, etc. German Neurological Society Transactions, Sept., 1928; abstracted in Arch. of Neur. and Psychiat., 22, 406, 1929.) I know of no specific headache due to neuralgia of the particular nerve described by Dr. Klepper.

Oral Surgery of Interest to the Rhinologist. Dr. Theodor Blum.

(To appear in a subsequent issue of THE LARYNGOSCOPE.*)*

DISCUSSION.

DR. J. I. KLEPPER: Dr. Blum brought up the question of methods of removing a piece of bone from the antrum following the extraction of a tooth. This question interests me.

The following is an interesting case: Mrs. E. had a tooth pulled, which was broken during the extraction, leaving the root. The dentist tried later to remove the root. In doing this he opened the antrum and stopped. The patient then came to me with an infected upper jaw and cheek around the region of the tooth. She was advised to wait until the infection subsided before further treatment. She returned to the dentist without waiting for any change, in order to show him her condition. He referred the case to an oral surgeon, who proceeded to remove the remnant of the tooth. He scraped the antrum, after enlarging the opening, and finally dislodged a tiny piece of bone the size of a head of a match stick. The patient then returned to me, having been advised by the oral surgeon to have a radical antrum operation for the removal of polyps. The only specimen returned to me was the little spicule of bone. There was no specimen nor any record of a pathological examination to substantiate the presence of polyps.

The patient's condition was precarious. Her temperature was 102°. There was sloughing of the tissue in the region of the antrum near the extracted tooth, bone necrosis (incipient osteomyelitis) and purulent discharge from the alveolar process. It was a dangerous looking area for further operative pro-

cedure. Immediate washing of the antrum through the alveolar opening and alternative washing by antral puncture of the nose were instituted until the above condition subsided and the local area showed gradual improvement with a diminution of the fistula from the antrum.

Several X-ray pictures taken and interpreted by Dr. Quimby substantiated our opinion that no polyps had been present in the antrum.

After a long period of suffering this patient recovered. She would not have stood the shock of the radical operative procedures, which were totally unwarranted. A circumscribed osteomyelitis might easily have developed into a diffuse osteomyelitis.

I congratulate Dr. Blum upon the conservative way in which he has treated his patients and saved the teeth.

DR. L. T. LEWALD: I have been very much interested in Dr. Blum's presentation. It is a most stimulating and instructive one. It is very seldom that one sees such careful radiological detail as Dr. Blum has worked out.

As to the so-called bite-film, I used it many years ago to great advantage. It seems to have escaped general use, and ought to be employed oftener. The location of these foreign bodies is very dramatic, as Dr. Blum shows. A stereoscopic examination will give the same result in some regions, but will never give the views at these unusual angles which Dr. Blum illustrated on the bite-film.

I would like to ask information on one or two points that are constantly coming up. We see impacted third molars; the patient has no symptoms, reflex or nervous, no localized pain, and the question is asked whether that tooth should be removed or not. Dr. Blum showed a case in which acute infection followed. He said it was later operated upon after infection had taken place and removed, but a fatal result followed. What would have been a more conservative procedure? I know of a duplicate case in a doctor also terminating fatally. Would one use some conservative drainage and not attempt removal if infection has occurred? These points are worth discussing. As to the question of broken needles: Is there any type of needle now available that is not apt to break? That is a point I hear discussed from time to time.

DR. BLUM (closing): Replying to Dr. LeWald's first question, whether impacted teeth should be removed if there are no symptoms present, I wish to say that from the number of cases we have seen of infection, referred facial pain and other nervous disturbances, these teeth should be either placed in normal position by orthodontic means or removed.

About the case of infected lower wisdom tooth: This patient had what we call an infected wisdom tooth pocket. It was partly erupted and a pocket formed, and debris got into the pocket and in this way it became infected. Instead of watching this and attempting to treat the acute infection until it became chronic and then proceed with the operation, the dentist went ahead and cut through the soft tissues and attempted to take out the tooth with a forceps. The patient developed an infection which finally extended to the cavernous sinus and caused death.

As far as needles are concerned, it seems that they are all liable to break, and I would not like to always hold the operator responsible. However, I have found the most frequent breaking of needles occurs in the mandibular injection, and for this I recommend a heavy needle. In my series of about 125 cases there were only two heavy steel needles.

Some Nose and Throat Observations in Labrador. Dr. John D. Kernan.

This was a motion picture demonstration by Dr. Kernan.

THE MINNESOTA ACADEMY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY.

SECTION OF OTOLARYNGOLOGY.

Meeting of Nov. 14, 1930.

Dr. John Brown, President, Presiding. Dr. Walter E. Camp, Recorder.

The regular monthly meeting of the Minnesota Academy of Ophthalmology and Otolaryngology was held on Friday evening, Nov. 14, 1930, at the Minneapolis Club. The meeting was called to order at 8 o'clock by the President, Dr. John Brown, of St. Paul.

Bronchoscopy; Experience of 100 Cases. Dr. Archie D. McCannel.

This paper was illustrated with numerous lantern slides, some showing collections of foreign bodies removed, and others showing X-ray examinations taken in the cases.

DISCUSSION.

DR. JOHN BROWN said he wished to thank Dr. McCannel, on behalf of the Academy, for his well presented paper and the slides connected with it.

DR. C. E. CONNOR thought Dr. McCannel's series of cases illustrated very well some of the more common difficulties that one encounters—things well to bear in mind. First of all, there is the unreliability of the history. One often gets a history of the child having had a foreign body in the mouth but of its disappearing before the mother could get it out. On the other hand, the parent may bring the child in with no history of a foreign body having been aspirated or swallowed; when the history is negative it is quite unreliable.

Another point Dr. Connor mentioned was the advisability of getting a duplicate of the foreign body when possible. Occasionally a child swallows something of which there is a duplicate; if one can study this before operation it is frequently a help.

Taking X-rays in more than one position is of aid and a film after operation protects the doctor and makes sure that no opaque foreign body is left.

Dr. Connor stated that, following Dr. Jackson's method, he uses local anesthesia in these cases, although once in a while one comes across a case where the spasm is so intense that ether anesthesia is necessary. One should not give a general anesthetic if dyspnea is present.

In connection with Dr. McCannel's case of the groceryman swallowing the peach pit, Dr. Connor stated that Dr. Mosher makes the statement that one may have laceration of the mucosa without rupture of all the coats, but if the trauma includes the muscular coats, so that the mediastinum is entered, then the case is fatal.

He called attention to the fact that Dr. McCannel did not touch upon the use of the bronchoscope in therapy. This is something rather new, but much progress is being made in this field, though Dr. Connor said his own experience along this line was too limited to enable him to add anything of great value.

DR. D. G. GARDINER said he felt when Dr. McCannel began showing his slides of specimens that he was talking about some of Dr. Gardiner's own cases, because in his series of cases at Ancker Hospital, and also at the Children's Hospital, he had some almost identical objects to those shown by Dr. McCannel. He stated that he was greatly impressed, on his first visit to Jackson's Clinic some three years ago, at the figures which Dr. Jackson brought out for an average period of six months, in which some 6,000 cases had been treated and that 98 per cent of these had been treated for disease and the other 2 per cent for foreign body. Realizing that foreign body work forms such a small minority of work in the bronchoscopic field, Dr. Gardiner had tried in his own work to widen its scope to include diagnosis and treatment of some of the recognized, as well as the obscure, lesions of the lungs.

Dr. Gardiner said he wished to show some slides and report some of his successes and some of his failures in treating these conditions of the lung. Dr. McCannel had presented a peach stone, a toy jackstone and a half-dollar and dollar, but Dr. Gardiner wished to show a tooth plate (slide shown of plate of two front teeth lodged in cervical esophagus). Dr. Gardiner also wished to compliment Dr. McCannel on his success in obtaining the specimens removed for his collection, as this sometimes in itself is a "work of art."

He also had a beer-cap, which was very much like Dr. McCannel's. This was in an Indian from the northern part of this state, who came to the city a very sick man, with a leukocyte count of 40,000 and a temperature of 104°, and it was realized immediately that in this case there was a ruptured gullet. There was not the fortunate outcome in this case which Dr. McCannel had with his. Under local anesthesia an anterior cervical mediastinotomy was made and a large quantity of foul-smelling pus was evacuated. Within six weeks the man was well, but he had a persisting esophageal fistula during that time; this finally closed and he made a complete recovery.

The next slides were taken in the case of a child who came into Ancker Hospital on the Pediatric Service with a diagnosis of pneumonia. The interne had not been able to get a history from the mother. Dr. Gardiner did a bronchoscopy and could see nothing except an intense tracheobronchitis (slides shown, taken at intervals of two days). The child's temperature was rather septic and the child was very sick. Dr. Gardiner said he usually filtered material obtained on suction, so that if the foreign body particles are partially masticated one can tell whether they are removed by examining the material sucked out, and he had found this a very valuable procedure in this case, for it proved to be a so-called peanut pneumonia.

He stated that he had treated six cases of lung abscess, with one surgical success and two failures. One child had ten teeth extracted under local anesthesia, and about ten days later developed an embolic hematuria, gastroenteritis and lobar pneumonia. The two former complications cleared up promptly, but the pneumonia resulted in a huge lung abscess. The child was not raising a thing but was very toxic, and Dr. Gardiner believed that he was dealing with a stenotic bronchus. The next day he had a picture taken in the upright position, showing the fluid level here (shown on slide). A bronchoscopy was done and within half-an-hour (slide shown) one can see the cavity is still there, but it is empty. A rim of granulation tissue was found and the instrument was plunged through this and about one ounce of pus recovered. The next picture was one showing perfect recovery six months later. Dr. Gardiner said he felt strongly that this patient would not have recovered had it not been for the bronchoscopic drainage.

The next slide was that of a baby, age 7 months, who had a typical pneumonia, followed by lung abscess . Bronchoscopy and suction were also used in this case. This slide (taken in July) shows a well marked abscess in one lung; and the next (taken in December) shows that the child had a complete cure on that side. Dr. Gardiner said these cases made him certain that there is something to bronchoscopic drainage in carefully selected cases.

The next case represented a bronchoscopic failure in a young girl, age 26 years, who had an upper lobe abscess with definite fluid level. She was bronchoscoped five times; each time a great deal of pus was recovered. Her temperature would drop to normal and she would feel very much better; then she would fill up again. It was felt that no progress was being made, so it was decided to use some means of collapse if possible. Dr. Gardiner said that in his work he worked very closely with the internists, particularly with Dr. E. K. Geer, and with his assistance the lung was collapsed by artificial pneumothorax (first slide showed collapse of lung after first introduction of air, and the next after the second introduction of air). And in this was shown the failure of the bronchoscopy—there was a band of adhesions holding the lung out. In the meantime a phrenicotomy was done, which resulted in a good rise of the diaphragm, and it was found that the pneumothorax was doing very definite harm; there was very dense pneumonitis at the base. They then were up against the problem of how to drain that abscess. Something had to be done so they resected two ribs and introduced a tube, and a picture taken

eight weeks after operation showed a clearing of the base, and the abscess almost entirely disappeared. The patient had come in for X-rays since, but they had not been put on slides. She seems well and has gained 35 pounds. From the bronchoscopic standpoint, this method is successful in some and in others it is not.

The next slide was in the case of a child who had all the symptoms of a retropharyngeal abscess, and a pediatrician had called Dr. Gardiner to see the baby. Direct laryngoscopy was done and an abscess was seen pointing in the right pyriform fossa. It was opened under direct vision and about one ounce of foul pus was recovered. About 9 p. m. that day the child became worse and in spite of the use of the oxygen tent he was forced to do a tracheotomy, due to edema of the glottis. Following the tracheotomy the child developed a subcutaneous emphysema of the neck, chest and lower part of the face. A day or so later, when he desired to change the tube, he could not get it to work. An X-ray was taken, which showed a spontaneous pneumothorax, complete on the right and partial on the left, and a mediastinal emphysema as well (shown on slide). Dr. Gardiner stated that the reason the tracheotomy tube was not working was that when the pneumothorax occurred it collapsed the lung and foreshortened the right main bronchus, so that the lower end of the tracheotomy tube was actually in the right bronchus. The child made an uneventful recovery, however. Dr. Gardiner thought that was a rather unusual complication, as he had never before seen a mediastinal combined with subcutaneous emphysema.

The next slide represents an esophageal diverticulum. The X-ray technician made some very beautiful studies of the anatomy of the hypopharynx, esophagus and epiglottis. The two-stage operation is very satisfactory. Dr. Gardiner said he had had three successes so far. This condition is very distressing to a patient. This one had a very good result and has no more difficulty in swallowing. Dr. Gardiner said he used the esophagoscope, in cases with small sacs, prior to making the incision, and with the light of the esophagoscope shining through the wall of the sac, one can cut down on it and find it without difficulty. It is then stitched to the skin or prethyroid group of muscles and in about 10 to 14 days, allowing the mediastinum to become sealed off by adhesions, the sac is removed in any one of many different but equally good methods, depending on the size of the neck of the sac.

Dr. Gardiner said he felt that some things had been left unsaid in the matter of taking the X-rays in these cases. He has been fortunate enough to have had installed a biplane fluoroscope at the Children's Hospital in St. Paul, enabling one to look through the patient in the anteroposterior and lateral positions at the same time, because in foreign body cases of long sojourn, where a lumen image is impossible, such double vision fluoroscopic guidance is indispensable.

In closing, Dr. Gardiner said he wishes to agree very heartily with Dr. McCannel's comments about food substances that lodge in the gullet, and cited one case which he had seen while associated with Dr. Wm. Lerche of a typhoid fever stricture. Another case of his own had had difficulty in swallowing from the age of 3 years. Dr. Gardiner said he finally picked out an almond in what was, he felt sure, a scarlet fever stricture.

He felt, with Dr. McCannel, that the ultimate and last word, if one wants to play safe in these cases, is that "when in doubt you have to look."

THE CINCINNATI OTOLARYNGOLOGICAL SOCIETY.

Meeting of Oct. 14, 1930.

Dr. Edward King, Chairman.

Paper was read by visiting physician, Dr. Shea, and lecture with slides given.

DR. KING: We have with us this evening a guest who has been interested in the subject of hematopoietic reaction to throat infections for a good many years, and since the Society has invited him here, I think we might have a few words from him. Everybody knows Dr. Berghausen, so there is hardly any need to introduce him.

DR. BERGHAUSEN: Dr. Shea gave us a very excellent presentation of the subject. It is a pleasure to have one who is particularly interested in nose and throat diseases present the general medical aspects of the subject. We need to dwell upon the newer knowledge of the changes in the blood picture following infection. It would be interesting to hear someone give a complete description of the hematopoietic system before this Society. The relationship between the various organs composing the system is dependent upon the endothelial cell, common to all. The clinical picture is produced by the changes occurring in these organs. The adrenal gland may thus become affected and result in the production of shock, due to the violent toxemia. Many years ago Arneth gave his classification of leukocytes. At the time I made such studies, particularly with reference to the prognosis in tuberculous subjects. There was little interest in the subject and I soon gave it up, because of this lack of interest and the fact that not much additional information was gained. It remained for Shilling to simplify this classification and to construct his hemogram, as so splendidly shown by Dr. Shea tonight.

These various infections are of particular interest to the nose and throat specialist, because they frequently become very severe in the first 48 hours. Many years ago I examined one patient suffering from a severe streptococcic sore throat, death occurring within 24 hours. I have no doubt that if we had known of this classification at the time, the agranulocytic type of hemogram would have been demonstrated. We must learn to differentiate between the various diseases which cause enlargement of the glands, syphilis, tuberculosis, mononucleosis, Banti's disease and the leukemias. This can usually be done by making a careful clinical examination and a study of the blood picture. In one patient suffering from aleukemic leucemia I was able to isolate a streptococcic type of organism, a few days before death. Last Saturday I had the privilege of seeing a patient suffering from Hodgkin's disease, in which the Shilling blood picture showed a distinct shifting to the left, indicating beginning degenerative changes. In such patients, treatments with the X-ray should be carefully given. In fact, a study of the hemogram may be of distinct value in controlling the dosage and interval of exposure.

Dr. Shea has very well shown us how it is possible to differentiate the agranulocytic type of hemogram from that encountered in patients suffering from acute infectious mononucleosis. The latter patients seldom die, whereas the former usually succumb within a very few days. The hemograms may further prove of value in patients suffering from syphilis, telling us when to give injections of salvarsan. Many patients are made worse by such injections, and a study of the hemogram may prevent such reactions. I am sure we are all deeply indebted to Dr. Shea and that we have all greatly enjoyed his remarks.

DR. MCCARTHY: I have here a case history which I believe to be that of a true case of agranulocytic angina. The reason I present this case is that incident to this discussion I believe the condition to be very much more common among females than males, and the case which I have is that of a male.

In going over the literature, I find in Pott's article, published in 1928, that the total number of accepted cases was 89, of which approximately 13 or 14 were males. Because this case was a male, I thought it was of some interest and importance to present the matter here.

This case went through the course which apparently so many have followed, that of a preliminary period of sore throat and discomfort for several weeks previous to the definite onset of severe tonsillitis. It terminated apparently as a lobar pneumonia, and in that termination was somewhat typical, as apparently a high percentage of the cases reported to date have terminated from lung complications.

This case entered Christ Hospital on July 1, 1930, at 7 p. m., having been seen for the first time by me at 4 p. m. the same day. He had been in bed for six days, having had an apparent rupture of an abscess in the left tonsil two days ago, and the right tonsil one day ago. There were a few necrotic patches on the tonsils. He was spitting up a large amount of pus, which apparently was not draining from the tonsillar abscess formation, but the type one would expect in a severe bronchitis. He was very mildly icteric, this icterus being particularly hard to notice because the man was a farmer, and was well burned from the sun. He did not feel badly at the time he entered the hospital, other than that his throat was quite sore and he felt tired out.

The striking condition found on his admission was the blood count, which is fairly typical. His red count was 5,100,000, hemoglobin, 89 per cent; total white, 4,400, the polymorphonuclear count being relatively low and the large lymph count relatively high. This white count varied from day to day until shortly before his death his white count was 650 and there were no polymorphonuclear cells found. Shortly before his death his white count was even lower than that and again no polymorphonuclear cells were found.

Following death I removed the right tonsil, and we removed a piece of the rib and aspirated the lung tissue. This was the most we could get permission to do. Unfortunately, the rib section was taken too close to the cartilage and did not show anything. The tonsil sections I am not able to show tonight. This, I think, is a fairly typical picture of the angina of agranulocytosis, and is of particular interest because it was from a male.

The blood culture in this case was negative, the smears from the mouth showed practically no Vincent's organisms present, the Wassermann was negative.

I thoroughly enjoyed Dr. Shea's instructive paper, and would like to ask the essayist, in closing, whether the blood culture in the case which he reported was positive, and whether he feels that the severe angina and the necroses occasionally found in Peyer's patches and in other parts of the body, in the last analysis are the results of sepsis rather than the cause of the sepsis.

DR. KING: Dr. Shea's paper is now open for general discussion.

DR. BEN L. BRYANT: It has been very nice indeed to hear such a graphic presentation of these various blood conditions from Dr. Shea tonight. I am particularly interested in the subject of agranulocytic angina, because I was fortunate enough, during my stay in Berlin, to know personally Dr. Werner Schultz, who has probably done more than anyone alive at the present time to bring this condition to the attention of workers in this field. At that time I had the opportunity of seeing some cases of true agranulocytosis with Dr. Schultz in his medical wards. It is worth noting, in passing, that the attention of the otolaryngologists has been directed, in recent years, particularly, to this study by the internists, who first described the oral lesions associated with certain blood conditions.

I am thinking tonight of the statement Dr. Schultz made after the first series of cases which he reported, wherein he stated that a true case of agranulocytosis always runs a course to a fatal termination. Following this, however, Dr. Brueggeman, of Berlin, also an internist, did a great deal of work in this connection, and presented a number of cases before the Berlin Academy of Medicine. Dr. Brueggeman stated that typical cases of agranulocytosis can be divided definitely into two classes, one of which—that with idiopathic onset—always runs a course, as Dr. Schultz has stated, to a lethal termination; whereas the other class, also typical agranulocytic angina cases, but following some general infection, such as pneumonia or influenza, more often than not offer good chances of recovery. I have not seen a classification of that type mentioned in the American literature. During the past year, I have noticed, however, in American journals, a number of so-called cases of agranulocytosis which have been reported cured, some of them from the giving of leukocytic extract and others from X-ray over the long bones.

I should like to ask Dr. Shea at this point whether, on the basis of his observations and study, he considers these apparently cured cases to have been erroneously diagnosed (as one might presume from his statement this evening that he considers every real case of agranulocytosis to be doomed), or whether he admits the possibility of two groups of these cases, as suggested by Brueggeman.

DR. WM. MITHOEFER: I do not feel that I am capable of discussing this paper, Mr. Chairman, but I certainly do want to congratulate Dr. Shea for his wonderful demonstration on the screen tonight. The fact that he brought out the Shilling count is of importance to us all. I believe the day is coming when we will ask for the Shilling count, not only in diseases of the pharynx, but chiefly in mastoid infections.

Now, I do not like to call this disease we have been talking about tonight agranulocytic angina, but to call it the angina of agranulocytosis, because I do not think that the angina with the ulceration in the throat is the cause of the blood picture. I think the general disease is the cause of the ulceration in the pharynx. It does not have to be limited to the tonsil. It can spread to the larynx. In fact, it is very often present without any throat manifestation whatsoever. Therefore, we should not call it angina, but the angina of a disease, because, in calling it angina, we feel as if the angina is causing the blood pictures.

In 1926, when Schultz brought out his book on tonsillar infections, I was very much interested in the work and read it carefully many times; but I have not seen, up to the present time, a true case of agranulocytosis. Of the first 28 cases reported by Dr. Schultz, 26 of them were females, so the case Dr. McCarthy told us about is unusual because it was a male.

Dr. McCarthy asked about the sepsis. Well, suppose you do get a positive blood picture! Do you know whether that is from the general infection or from the ulceration of the tonsil?

Dr. Shea has certainly brought us a valuable message tonight, because I think frequent blood examinations should be made by the otolaryngologist.

DR. SHEA, in closing: The explanation of the hematopoietic response in the fatal cases of infection by the Vincent organisms is difficult of explanation. There is a gradual increase in the total count, upwards of 30,000, with a hypogranular cytosis.

Hematology is undergoing radical changes. The relationship of the anginas and the hematopoietic system is uncertain, for in one instance an infection of the throat may be the initial lesion and in another the terminal manifestation of a hematopoietic disease. The medical student of ten years ago was taught a theoretical classification of the diseases of the blood which was not practical when applied in the routine of medicine. Today, one seeks a better knowledge of the possibilities of the hematopoietic response to infection, and this knowledge can best be obtained through a closer study of the observations on the blood in the anginas.

In 1907, Turck described a hematopoietic disease that has become known as agranulocytic angina. In 1922, Schultz again drew attention to the disease, and since then many cases have been reported in the literature. I wish to report one true case, and two cases, one resulting from neoarsphenamin and the other of an unknown origin, the blood pictures of which were those of agranulocytic angina.

The older physiologists considered the blood as a special form of connective tissue, having a fluid matrix. The modern conception is that the blood is a mixed secretion, the formed elements of which are the result of parent cells living outside the blood stream.

Dr. Hoyer, in answering your question on classification of these blood responses in children, it is necessary to remember that the hematopoietic response in them is quicker than in the adult. These quick changes confuse the classification in specific cases.

Dr. McCarthy, the majority of the laboratory men contend that the finding of bacteria in a blood taken a few hours before death or post mortem is not proof that septicemia existed during life.

Dr. Mithoefer, I agree with you that the anemia is terminal and that we should use a Shilling count in our mastoid cases.

THE MEDICAL SOCIETY OF THE DISTRICT OF COLUMBIA.

Meeting of Oct. 17, 1930.

Dr. David Davis, Reporter.

Sinusitis and Some of Its Causes, with X-ray Illustrations. Dr. Thos. A. Poole.

In considering sinusitis I would like to mention the names of some of the men who brought this important subject so prominently before the medical world.

Onodi, as far back as 1906, possibly wrote and delivered the first important paper on this subject at the Thirty-third Ophthalmological Congress, held at Heidelberg. Again, in 1908, he read another paper on the optic nerve and accessory cavities of the nose .

Arnold Knapp wrote on bilateral optic neuritis after ethmoiditis in 1908. Following these three very important papers, H. W. Loeb wrote voluminously on the anatomical relations of the optic nerve to the accessory cavities of the nose (1909). And from that time to the present such men as Hajek, Skillern, Sluder, Van der Hoeve, de Schweinitz, H. H. Stark, F. Billings, J. H. Parsons, G. A. Piersol, including Jackson and Coates, and many others too numerous to mention, have contributed very materially to this subject.

The general consensus of opinion is that these cavities, being nothing more than incubators for bacteria to multiply in, when and after the ostium or drainage has become obstructed or occluded. With this occlusion we have anerobic bacteria development. This character of bacteria produces extensive involvement in surrounding tissues and cavities, the reason being that the mucous membrane of these many cavities are contiguous with one another. Again, the venous circulation, we know, is a great conveyer of bacteria, especially that the bony separation of the adjacent structures contain so many dehiscences, and small venous radicals, which form communication between the veins of the mucous membrane of the sinuses and the venules of the dura. If we take only one sinus, the maxillary antrum, we find, on account of the relation of the lining membrane of the antrum to the nasal cavity, other sinuses and the teeth, it is more often diseased than any other sinus. Its ostium is so placed as to be easily blocked by acute tissue changes in the middle fossa of the nose, by chronic hyperplastic conditions of the middle turbinal body, or by direct extension of infection from nasal mucosa. Infection from neighboring sinuses must also be considered. In addition, the floor of this sinus is in intimate relation with the teeth, which may project into the lumen, especially the second premolar and first molar. Like other cavities with a lining mucosa, it is subject to acute and chronic inflammatory changes. As additional etiological causes we have the infectious diseases, which we can refer to as those with incubator periods. Conditions such as measles, scarlet fever, diphtheria, pneumonia, influenza, etc. Almost invariably you can trace the present condition of involvement of the sinuses from some past attacks of one of these childhood diseases.

The Roentgen ray has become an invaluable aid in the diagnosis and causes of many of these obscure sinus involvements and foci of infections. Its chief field of usefulness, however, is in the diagnosis of frontal, ethmoid and maxillary conditions. The evidence obtained by the Roentgen ray of the sphenoid is not as reliable or dependable, but it does give one a good and clear definition of the anatomy, which is of help in operating.

I have selected some 30 or more pictures which I wish to throw on the screen here tonight. These pictures show so clearly, to my mind, a tremendous assistance in determining the location and the possible extension of these localized foci of infections into the orbit, thereby producing so many of our eye,

tissue, nerve, blood vessel and muscle fixation and near point symptoms. I feel so convinced in this that I think it of importance to X-ray each and every case of any facial or head condition that I am called upon to treat.

In conclusion, gentleman, I wish to say that if any of you have the time and opportunity while visiting London, call on Sir Arthur Keith, Curator, Royal College of Surgeons, and get his permission to inspect the wonderful collection of Onodi dissections there and you will be well repaid. One can see there medical men from all parts of the world studying this most wonderful collection of actual anatomical specimens.

This paper was discussed and criticized by Dr. Bennett, Dr. Bailey, Dr. Davis, Dr. Gill, Dr. Tribble and Dr. Flynn.

THE NASHVILLE ACADEMY OF OPHTHALMOLOGY AND OTOLARYNGOLOGY.

Meeting of June 16, 1930.

Dr. Rob. Warner, Chairman, Presiding. Dr. W. W. Wilkerson, Jr. Secy.-Treas.

Congenital Short Palate. Dr. W. G. Kennon.

H. W., female, age 5 years, first brought to office Feb. 1, 1926. The history obtained from the mother is as follows: She is the youngest of a family of seven. One brother died of hydrophobia. The child was born after normal labor. There were no apparent congenital abnormalities. Her physical and mental development were along normal lines. It was noticed that she could not talk as plainly as the average child at the age of 3 years, but this was thought to be due simply to slow development in this respect; however, as the child appeared to be normal in every other way no one was consulted in regard to the defective speech until the above mentioned date.

Examination showed a child of normal appearance and development. She was alert and intelligent. She seemed to be normal mentally and to know about as much as the average child of her age. Her hearing and vision were apparently normal. Her ability to enunciate was apparently her only defect. In this respect her speech was that of a person whose palate has been paralyzed. Examination of her nose and throat showed no abnormality, except that the soft palate did not come into contact with the pharyngeal wall. The palatal movements were normal on attempts at phonation and when the patient gagged, but even in gagging the palate did not touch the posterior wall of the pharynx. I told the mother that I thought the condition to be a congenital abnormality, but that I did not know anything about the condition and had only a vague recollection of having somewhere read of it, so she would have to return after I had a chance to look up the literature on the subject. I did not again see the patient until March 13, 1930. During the interval of four years there had been little or no improvement in her speech.

Examination showed about the same conditions as before recorded. It was, however, easier to examine the patient, as she was more co-operative. At this time I was able to make a postnasal examination with a mirror. The tonsils were moderately large and there was a small mass of adenoid. Even when the child gagged, with the mirror in place, a view of the rhinopharynx could be obtained. The soft palate was simply so short that it could not reach the posterior pharyngeal wall.

The only reference I had been able to find was an article by Dr. Elmer Kenyon, of Chicago. This was published in the Annals of Otology, Rhinology and Laryngology of March, 1925.

DIRECTORY OF OTOLARYNGOLOGIC SOCIETIES.

AMERICAN OTOLOGICAL SOCIETY.

President: Dr. David H. Walker, 101 Bay State Rd., Boston.
Secretary: Dr. Thomas J. Harris, 104 E. 40th St., New York.
Place:

AMERICAN LARYNGOLOGICAL ASSOCIATION.

President: Dr. Francis R. Packard, 304 S. 19th St., Philadelphia.
Secretary: Dr. George M. Coates, 1721 Pine St., Philadelphia.
Place:

AMERICAN LARYNGOLOGICAL, RHINOLOGICAL AND OTOLOGICAL SOCIETY.

President: Dr. Max A. Goldstein, 3858 Westminster Pl., St. Louis.
Secretary: Dr. R. L. Loughran, 33 E. 63rd St., New York.
Place: St. Louis, June 3-4-5, 1931.

AMERICAN BRONCHOSCOPIC SOCIETY.

President: Dr. Henry B. Orton, 24 Commerce St., Newark, N. J.
Secretary-Treasurer: Dr. Louis H. Clerf, 128 S. 10th St., Philadelphia.
Place: St. Louis, June 6, 1931.

AMERICAN ACADEMY OF OPHTHALMOLOGY AND OTO-LARYNGOLOGY.

President: Dr. William H. Wilder, 122 S. Michigan Ave., Chicago.
President-Elect: Dr. J. F. Barnhill, Miami Beach, Fla.
Executive Secretary: Dr. William P. Wherry, Medical Arts Bldg., Omaha.
Place: French Lick, Indiana.